2007/2008 : Report 5

OFFICE OF THE

Auditor General of British Columbia

Preventing Fatalities and Serious Injuries in B.C. Forests:

Progress Needed

January 2008

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The Honourable Bill Barisoff
Speaker of the Legislative Assembly
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Dear Sir:

I have the honour to transmit herewith to the Legislative Assembly of British Columbia my 2007/2008 Report 5: Preventing Fatalities and Serious Injuries in B.C. Forests: Progress Needed.

John Doyle
Auditor General

Victoria, British Columbia
January 2008

copy: Mr. E. George MacMinn, Q.C.
Clerk of the Legislative Assembly

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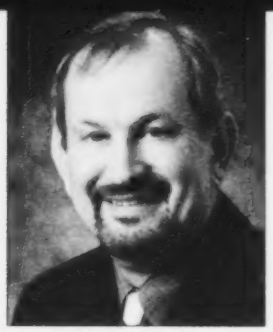
Auditor General's Comments



John Doyle
Auditor General

The forest industry in British Columbia has been marked by a long record of on-the-job fatalities and severe injuries. Every year from 1996 to 2006 an average of 22 workers died and 92 workers suffered serious injury, including maiming and other permanent disability.

In 2003, the Premier called for urgent action to address the forest worker safety problem. He announced the formation of a Forest Safety Task Force, made up of senior representatives from the forest industry and WorkSafeBC, whose job was to cut the incidence of forestry-related deaths and serious injuries in the sector by 50% within three years.

Five months later, in January 2004, the Forest Safety Task Force issued its final report in which it stated the collective resolve of its members to make working in the woods safer. Of particular note was the task force's decision to go beyond the government's stated goal. It instead set a goal of zero deaths and serious injuries in the industry. The current situation, however, remains far from that. WorkSafeBC reported that in 2006 alone, 13 workers died and 73 serious injuries occurred as a result of forestry workplace incidents.

The task force established a health and safety accord to displace the "deeply entrenched bias to discount the importance of working safely." The accord was to provide impetus for industry and government to change both attitudes and practices. However, three years later, tangible progress toward the goal is unrealized. As a result, strong leadership within government on a number of issues is now required to complement and support any renewed efforts by industry.

Audit purpose and scope

In 2006, the Minister of Forests and Range called for an independent review of forest safety issues—concerns shared by the Minister of Labour and Citizen's Services. Because of high public interest in the matter of forest worker safety, my predecessor felt it was appropriate to assess the matter, and so undertook this audit.

The purpose of the audit was to assess the government's progress toward fulfilling the commitments it made to improving forest worker safety during 2003 and 2004.

Auditor General's Comments

We looked at the role of the provincial government and its agencies involved in forest worker safety, using the Report of the Forest Safety Task Force as a way to focus our examination of government efforts. The main agencies we examined included the Ministry of Forests and Range, the Ministry of Labour and Citizens' Services, WorkSafeBC, the Ministry of Transportation, and the Insurance Corporation of British Columbia (ICBC). Our interest was in how these agencies' efforts affect the core activities of forest harvesting (known in the industry as "stump to dump" activities). These include:

- felling, limbing and cutting trees to length, using either hand-held chain saws or mechanized equipment;
- moving timber to a point where it can be loaded onto a truck, by cable systems, grapple-yarders, skidders or helicopters; and
- transporting timber by truck to a sorting area or mill.

We carried out our work between December 2006 and May 2007. The quantitative information we provide is drawn from the sources identified in the text. Although we checked whether this information was reasonable, we did not audit it. Our examination was performed in accordance with assurance standards established by the Canadian Institute of Chartered Accountants, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

This work required the audit team to collect evidence from the forest industry to determine what impact government was making relative to its forest worker safety commitments. The report attempts to fairly describe the industry so that the context within which fatalities and serious injuries occur is provided. However, it is not our role to assess the adequacy of industry's efforts or to make recommendations thereto.

Overall conclusion

We concluded that government still has to overcome significant challenges if it is to meet the goal it set in 2003 of radically decreasing deaths and serious injuries in the forest industry. Current measures are just being implemented and have not yet proven to be effective in moving forest worker safety towards the goal of eliminating fatalities and serious injuries identified by the Forest Safety Task Force.

Auditor General's Comments

Government's involvement in forest safety is fragmented among several bodies and no one ministry or other government agency has been assigned overall responsibility to coordinate changes that could improve forest worker safety. The government is not vigorously enforcing existing occupational health and safety regulations on all forest industry employers, nor is it requiring unregulated one-person companies doing business on Crown land to meet occupational health and safety requirements. Furthermore, because it does not track forest worker activity systematically, government has no way of assessing its progress in meeting the new safety goals.

If government is to meet its forest worker safety goals, action is required on a number of fronts. First, stubborn attitudes about and within the industry should be unseated, not the least of which is a widely held belief that forestry work cannot be made safe. Second, proactive government involvement is required to ensure that safe practices are adopted as the norm. This means putting the right organization into place and applying effective policies over the long term. Third, government should work together with industry to support and invest in worker safety permanently.

Our key findings are summarized below.

Key findings

Leadership and appropriate organization are needed

Leadership for making safety a prominent government priority is lacking

Government's responsibility for forest safety is fragmented among several bodies. No ministry has been given overall responsibility for coordinating and managing public sector activity relative to the goal of radically reducing fatalities and serious injuries or for monitoring and reporting on meaningful progress.

Several public agencies whose mandates have responsibilities related to safety activities have no specific strategies for effectively contributing towards the goal since it was set in 2003.

Responsibility for safety is especially fragmented for log hauling, where there are several regulatory gaps.

Safety infrastructure within the industry has continued to deteriorate

As the Forest Safety Task Force foresaw in 2003, a consequence of the continuing trend to contracting work is that the contractors now have to shoulder the prime responsibility for safety. These contractors are often small firms or self-employed persons who generally lack the knowledge, organization and financial resources to meet these responsibilities.

WorkSafeBC has proposed that part 26 of the Occupational Health and Safety Regulations be amended to require that all forest companies, regardless of size, take responsibility for many of the safety provisions they have not been acting on voluntarily. The draft amendments were moving through a public consultation process at the time of this audit.

Government has not effectively discouraged risk-taking and displaced stubborn attitudes tolerating danger

Economic drivers remain a threat to safety in an industry that traditionally tolerates danger, values independence and expects no supervision. For the smallest companies, the incentives to take risks with worker safety exist, particularly as contracting is highly competitive and requires no safety infrastructure prequalification to bid. These firms are most likely to work without adequate planning for safety, supervisory control and safety infrastructure in place.

Furthermore, the small operators—who sustain the majority of the industry's serious injuries and fatalities—are those hardest to reach through safety policies such as the WorkSafeBC premium rebate program. The SAFE Companies program, designed to accredit companies reaching specific levels of safety infrastructure, has not certified the smallest firms in the industry.

Government's commitment to its safety goal is not being expressed through regulatory compliance

Existing occupational health and safety regulations are not being adequately enforced in the industry. Inspections, follow-up on infractions and penalizing as necessary were not stepped up when the radical reduction in fatalities and serious injuries goals were set.

Mechanisms for making safety a priority are needed

Planning for safety is weak

Currently, government requirements for timber harvest planning do not include safety as a major goal. The Forest and Range Practices Act, enacted in 2004 requires only high-level forest stewardship plans to be in place before timber on Crown land can be harvested. The Act requires 11 resource and environmental objectives be addressed in the plans, but safety is not one of them.

Regulatory overlap is risking a degree of confusion as to the priority of safety when planning. There is no requirement for plans to be developed or reviewed by safety experts and forest professionals are not required by law to consider safety. Ministry officials and professional foresters continue to treat safety concerns in isolation from the activities of forestry.

Supervising forest workers is not standard practice

At present, supervision in British Columbia's forest industry is spotty and very often entirely absent. The industry still makes working without supervision a virtue. The traditional view that some tasks, such as falling, do not require close supervision, prevails.

Some improvements may be on the way. The B.C. Forest Safety Council initiated a supervisor certification program in January 2007. No evaluation is yet available of the impact of this program on safety, or of its ability to supply supervision where it is absent or minimal.

Auditor General's Comments

Government is not making safe hauling on resource roads a priority

Government permits industry's construction and use of resource roads in Crown forests, but does not have an active involvement in the safe use of those roads. Government does not focus its compliance and enforcement activity or its resource road use policy to help improve timber hauling safety.

Government is not requiring training for specific risky activities

In spite of the hazards that danger trees present to fallers, basic faller certification training does not include mandatory training for fallers in danger tree recognition, non-destructive tree evaluation and blasting. Proficiency in these matters would give fallers a wider range of tools to use and would not require a specialist to be called upon to make the initial detection of risk.

There is no provision requiring would-be drivers of timber haul trucks to reach specific levels of competence before handling large loads on unpaved roads. The specific truck configurations in timber hauling work, the unusual gradients possible on resource roads, and the behaviour of the vehicles under load on unpaved surfaces are just some of the unique conditions that require a level of driver competence unlike that gained through experience in commercial trucking on paved highways.

Safe limits have not been set

We learned that during the seasonal or operational periods available to them, both employees and the self-employed often perform strenuous and hazardous activities in excess of 35 hours per week. Data indicate that men doing heavy work suffer much higher levels of activity-limiting injury if they work above this threshold.

Auditor General's Comments

Forestry equipment is not always operated or maintained to safe limits

Supervision and regulatory enforcement could have more impact with respect to safe equipment usage and maintenance. Machinery is often used on slopes in excess of the manufacturers' recommendations. Experts express concerns that truck overloads are a common occurrence as well, pushing loaded rigs beyond braking and stability expectations.

Travel during working hours is risky

A surprising number of deaths occur when forest workers are travelling to and from a work site. Log haulers' deaths account for a large proportion of these, but many fatalities are associated with other types of vehicles en route to and from a work site. Accident reports indicate that excessive speed on unpaved roads is a contributing factor.

Better reporting is needed

Adequate reporting of fatalities and serious injuries is lacking

While some reporting is done by various agencies, information is not well shared between them. Information on incidents is not comprehensively gathered, consolidated and analyzed. We found that in-depth analyses of individual incidents are not well publicized to support a wider public education program. As well, true rates of serious injuries and fatalities year to year cannot be accurately calculated because a base of accurate data has not been established. As a result, nobody is reporting on the real rate of change in the safety record of the industry, leaving the public and legislators with no useful indication of real progress toward the radical reduction goal.

Summary of recommendations

The recommendations set out below (and discussed further in the detailed report that follows) are presented in the context of government's goal to dramatically reduce the incidence of forestry-related deaths and serious injuries.

Leadership and appropriate organization are needed

1. **We recommend that government assign one ministry to lead in issuing policy direction including:**
   - **initiating regulatory change.**
   - **closing jurisdictional gaps.**
   - **assigning resources to meet government's safety commitments.**
2. **We recommend that the Ministry of Labour and Citizens' Services consider how best to ensure that a robust safety infrastructure is directly supporting every forestry work site.**
3. **We recommend that the Ministry of Labour and Citizens' Services bring self-employed forest workers under the province's occupational health and safety regulations.**
4. **We recommend that the Ministry of Labour and Citizens' Services ensure that a mandatory prequalification requirement for all firms is put in place, ensuring that forest industry firms, regardless of the size of the entity, be required to demonstrate safe operation and organization as a precondition for working in the industry.**
5. **We recommend that government consider economic incentives, outside the workers' compensation system, for rewarding safe operators. These should reach down to the smallest firms and the self-employed, to encourage faster progress toward achieving the forest worker safety goals of government.**
6. **We recommend that existing health and safety regulations be more vigorously enforced by WorkSafeBC through inspections, follow up on infractions and punishment of non-compliance.**
7. **We recommend that government leadership on safety seek direct input from other natural resource-based industries having better safety records, such as mining.**

Mechanisms for making safety a priority are needed

8. **We recommend that robust safety planning in all aspects of forest operations should be made mandatory by the Ministry of Forests and Range.**

9. **We recommend that the Ministry of Forests and Range seek two amendments to the Foresters Act:**
   - **Make forest worker safety an explicit object of the Association of Forest Professionals under section 4 (2).**
   - **Include in the definition of 'practice of professional forestry' explicit mention of competence in forest worker protection.**

10. **We recommend that WorkSafeBC enforce the requirement that supervision be in place for all forest workers, including fallers and truckers.**

11. **We recommend that the Ministry of Forests and Range use its powers to enforce safe use of resource roads. The Ministry should establish and participate actively in resource road user committees.**

12. **We recommend that training relative to known risks should be made mandatory. For example, drivers who lack specific experience and training in driving large loads off-highway should be required by ICBC to demonstrate competency before being given independent control of such a vehicle. Fallers should be required by WorkSafeBC to demonstrate competency in danger-tree recognition, non-destructive tree evaluation, and blasting, so that they have a wider range of tools and techniques available when specific risks are present.**

13. **We recommend that the Ministry of Labour and Citizens' Services identify, through credible third party research, safe work hour limits for high-risk forestry occupations and then regulate and enforce those limits accordingly. These limits should be made applicable to self-employed forest workers as well as those employed in the industry.**

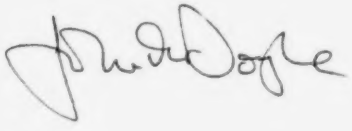
14. **We recommend that the Ministry of Labour and Citizens' Services consider ways to better protect all forest workers during work-time travel.**

Auditor General's Comments

Better reporting is needed

15. We recommend that a lead ministry coordinate sharing and consolidation of information on fatalities, serious injuries and near-misses to support more extensive educational and enforcement activities to promote safety. The lead ministry should consolidate fatalities and injuries data and ensure that a system of comprehensive research and reporting is in place, one that covers the activities of all forest workers including the self-employed. That ministry should report meaningful information to the Legislative Assembly on a regular basis to provide legislators and the public with a basis for knowing whether safety improvements are working.

I wish to thank everyone who cooperated with my Office and assisted us in gathering the information for this audit. As well, I would like to acknowledge the hard work, professionalism and dedication of my staff in the production of this report.



John Doyle
Auditor General

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Detailed Report

The forest industry in British Columbia remains, after more than a century, one of the province's main economic drivers. It now generates more than $1.2 billion in revenues for the province yearly and, in 2005–2006, provided employment for more than 22,000 forestry, logging and support workers, according to the 2007 British Columbia Financial and Economic Review.

Forestry involves a range of operations, from planning, surveying and road construction, through timber harvesting, reforestation, stand tending and ecosystem management.

Increased mechanization of timber harvesting is resulting in fewer workers in the industry

Timber harvesting is becoming highly mechanized. Most workers now work off the ground, operating large machines (Exhibit 1). In the Interior of the province, the bulk of forestry work has been mechanized for some time. On the Coast, mechanization has not progressed as rapidly.

Exhibit 1:

Number of full-time equivalent forest operators, by occupation, 2006*

Region	Occupation				
	Hand falling	Hand bucking	Mechanical harvesting	Mechanical yarding, processing and loading	Trucking
Coast	1,137	129	63	705	696
S. Interior	188	29	448	1,510	1,224
N. Interior	28	4	434	1,632	1,397
Total	**1,353**	**162**	**945**	**3,847**	**3,317**

Source: FERIC BC Forest Industry Workforce Review, March 2007

*Figures represent the number of full-time equivalent (FTE) workers needed to process the volume of timber harvested in a year. These figures are not necessarily equal to the number of actual workers employed in timber harvesting during that year.

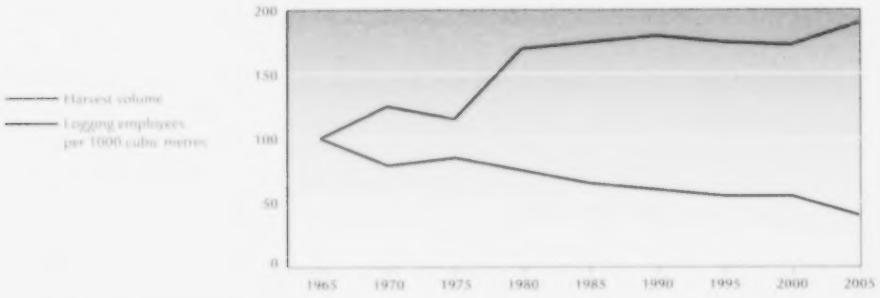
A range of harvesting methods is used in the North, Interior and Coast (see Appendix A). Mechanized harvesting machines known as feller-bunchers are the most commonly used across the province, but hand falling is still the norm on the Coast, partly because of feller-bunchers' limited application on very steep slopes.

Background

Higher mechanization means that fewer workers are needed to accomplish the same amount of work. As Exhibit 2 shows, although harvesting volumes increased between 1965 and 2005, the number of workers needed to harvest a given volume of timber declined.

Exhibit 2:

Harvest volume relative to number of employees in British Columbia, 1965–2005*



*Harvesting volume, 1965 = 100% (43,413,000 cubic metres); logging employees per 1,000 cubic metres, 1965 = 100% (0.43).

Source: Harvest volume data from Ministry of Forests and Range. Employee data from Statistics Canada.

A recent study found that the number of forestry workers in British Columbia shrank by about 30% between 1994 and 2005, and projected a continued decline to 2016 (although by a smaller amount, 14%).

Mechanization also means that more forestry workers now work within protective cabs. This is significant because fallers working on the ground (14% of forestry workers)—virtually unprotected—account for 25% of all serious injury claims by forest workers.

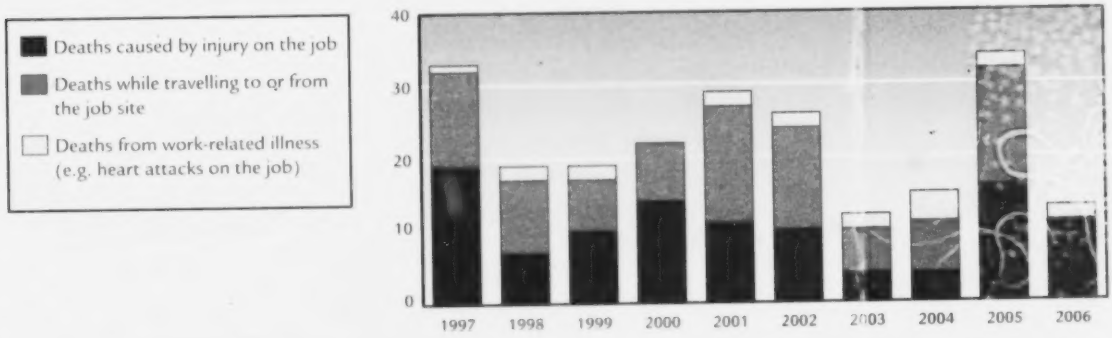
Forestry continues to be a dangerous occupation

Despite declining numbers of workers and some safety gains through mechanization, forestry in British Columbia remains a hazardous occupation. Records of WorkSafeBC (formerly the Workers' Compensation Board of British Columbia) show that every year, over the 10 years from 1997 to 2006, an average of 22 workers died (Exhibit 3).

The 30% decline in total worker numbers has not had a corresponding decline in the incidence of deaths and serious injuries. This suggests that any safety gains that mechanization may have contributed, while worker numbers have been dropping, merely helped to keep levels of incidence from being even higher.

Exhibit 3:

Work-related deaths among British Columbia's forest workers, 1997–2006



Source: WorkSafeBC data. (Note: 2006 data on deaths while travelling was incomplete at time of writing.)

In the same 10-year period, an average of 92 workers a year were severely injured on the job. Severely injured forest workers typically do not return to the workforce.

These cases are not only difficult at the individual personal level to bear; they are also costly. Over the last decade, WorkSafeBC has paid out an average of $69 million per year for workplace serious injuries and deaths in the forest sector. However, the true costs to the public health care system may be much higher. The Canadian Medical Association notes that as many as 40% of eligible workplace injuries go unreported and as many as 54% of work-related injuries reported to physicians are inappropriately billed to the public health care system in place of being reported to employers and then covered by the worker compensation system. Work-related illnesses go unreported to an even greater extent.

Death and serious injury are not the only on-the-job hazards that forest workers face. In the longer term, occupational disease and injury commonly affect forest workers, most often through hearing loss, heat and cold stress, musculoskeletal disorder or traumatic

injury. Most injurious impacts build up over time, thus increasing an individual's risk of death or permanent injury.

Workers doing particular jobs are more vulnerable than others—as the discussion about mechanization above has already noted. In the forest sector, between 1991 and 1997, fallers' work was twice as likely to result in a job-related fatality as other forestry work. Trucking was only half as risky as the faller work, and equipment operators were the least at risk.

Another concern is that British Columbia's forest workforce is relatively old and is getting older. A recent survey by the Forest Engineering Research Institute of Canada found that 60% of the province's loggers are at least 50 years old. Older workers face added risks. Their injuries are often more severe and recovery takes much longer. In addition, some international studies say that older workers face higher rates of on-the job accidents than do younger workers.

A faller typically carries over 80 pounds of gear walking to and from the worksite.
(Photo courtesy of Western Fallers Association)

Background

Death and injury rates in forestry are higher than in comparable industries

Forest worker safety in British Columbia does not stack up well by almost any reasonable comparison. For example:

- Forestry work in British Columbia has twice the rate of serious injuries, per thousand workers, as other high risk industries in the province.
- Forestry's rate of lost-time injuries is more than twice that in the oil, gas and mining sector.
- Wood and paper products manufacturing is almost 10 times safer than forestry work in terms of fatality rates.

Why is forestry work so dangerous?

The environment in which timber harvesting and transportation take place poses a wide range of risks to workers. Unstable and steep terrain, challenging weather conditions (heavy rains, strong winds, deep snow, ice and excessive heat) and treacherous road conditions are just some of the hazards.

Faller working on a cliff face. (Photo courtesy of Western Fallers Association)

The sheer weight of the trees being felled presents a threat. Fresh timber can also bend rather than break under tension. This means that a fallen tree can get hung up on obstacles, then lash out with great force when that tension is released. Saplings and branches can snap back as well, striking an unwary worker.

High winds or adjacent falling activity can bring down "widow-makers"—dead branches or snags. Leaning trees and slope can also thwart even the most experienced faller's planned direction of fall. Logs can run away down slopes, dislodging rocks and other timber that create a hazard for workers below. "Close call events," where a worker is not hurt but could easily have been injured or killed, happen frequently.

Grapple yarder pulls second-growth timber to a roadside. (OAG staff photo)

Background

Log hauling presents a number of risks. If trucks are overloaded, as appears to be a common practice, they can exceed manufacturers' designed braking capacity. Drivers may be injured while chaining up their load of several tonnes of logs or while checking the security of the load.

Drivers, always under pressure of delivery times, manoeuvre narrow unpaved roads at the highest manageable speeds. Switchback turns and a log load with a typically high centre of gravity demand outstanding driving experience and ability. Resource roads are often busy with other traffic and not always well signed. Slopes can be steeper than permitted for any highway, and rain, ice or snow can reduce effective control even for the most experienced operator. Unless they take the time to adjust their brakes, drivers risk not having optimal braking capacity. Driving in darkness (the norm at some times of the year) compounds all other challenges by reducing visibility.

Switchback turn on forest access road. (OAG staff photo)

Fatigue takes a toll in this industry, too. Alertness wanes over a typical 10-hour workday (not including a usual one to two hours of travel each way to a worksite). Many forest workers leave home at 4 a.m., returning in the early evening. Truckers often spend even more time on the job, servicing their equipment at day's end.

Felling and bucking on the Coast. (Photos courtesy of Western Fallers Association)

Solitude is another factor contributing to the danger of the job. Because fallers and truckers typically work alone, they often have no one around to offer oversight or advice, to help second-guess a known hazard or risk encountered, or to alert them to an unseen hazard.

The Forest Safety Task Force report marked a major shift in expectations around forest safety

On August 1, 2003, British Columbia Premier Gordon Campbell committed his government to reducing deaths and serious injuries in the forest industry. The goal he set was to cut the death and serious injury rates in half by August 2006, with further reductions in later years.

The Forest Safety Task Force was created at that time and given both a planning and an implementation function. Task force members were drawn from industry groups, including organized labour, and led by the Chair of the Workers' Compensation Board (now WorkSafeBC). See Appendix B for a list of Forest Safety Task Force members.

The task force adopted, as its point of departure, the recommendations of a 2002 report prepared by the International Woodworkers of America, Canada (IWA), the major forestry union in British Columbia at the time. That report called for substantial reforms in four areas, namely:

- changing industry attitudes to safety so that unsafe practices would not be tolerated;
- making sure that a robust, well-supported safety infrastructure existed in every workplace;
- having the Workers' Compensation Board diligently enforce safe practices in all forestry firms, even the smallest; and
- having the Workers' Compensation Board provide financial rewards only to employers with exemplary safety regimes.

The task force built on these suggestions, keeping foremost in mind the idea that the attitudes of toleration for unsafe practices had to change. In its own report, issued in January 2004, the task force also presented several new directions for reform that would require the coordinated involvement and efforts of both industry and government. It then specified a dramatic goal that reached beyond the Premier's 50% reduction commitment in 2003: zero fatalities and serious injuries.

According to the task force Chair, this more aggressive target was required if the task force action plan was to be successful in eliminating deaths and serious injuries in the sector. As he said in 2004, "We know it's a tall order that will take ongoing commitment from all corners of industry, but the human costs—as well as the financial costs—are too great for us not to move forward."

Key points set out in the Forest Safety Task Force final report

In its final report, issued in January 2004, the Forest Safety Task Force proposed a set of core beliefs and commitments for industry to adopt. In addition, the task force:

- called on industry to see safety as an investment benefiting productivity;
- called on WorkSafeBC to create incentives for employers supporting the new safety culture;
- advocated the creation of an industry liaison group to champion safety issues across the entire industry, recognizing that serious injuries and deaths are most common in the smallest firms in the forest sector;
- advocated the creation of a more safety-supportive environment within companies, and efforts to standardize skill sets for all workers.
- identified quality supervision as being a critical ingredient to reform;
- advocated adopting new technologies, both emerging and existing;
- recommended that a safety support infrastructure be made available to all workers in the forest sector, not just those in large corporations;
- called for better publicizing of worker death and injury incidents and better incident reporting in order to raise public awareness;
- called on government to provide better regulation and enforcement;
- called on government to clarify the safety responsibilities of employers; and
- called on the Ministry of Forests (now Forests and Range) to review its impact on the safety of forestry activities on Crown lands.

The task force called on *government* to:

- realign its regulatory regimes to give prominence to forest worker safety;
- make a firm's safety record a precondition to any award of harvesting rights;
- create incentives for industry to improve its overall safety record; and
- create a new industry liaison body, the B.C. Forest Safety Council, to coordinate the needed reforms within the industry community.

It called on the *private sector* to:

- encourage industry (including firms of all sizes, contractors, and organized labour) to adopt the safety reforms in their areas of responsibility.

The B.C. Forest Safety Council was created

Acting on the recommendation of the Forest Safety Task Force, the government created the B.C. Forest Safety Council in 2004. WorkSafeBC provides core funding for the Council out of levies it charges registered forest industry employers. Its members are drawn mainly from forestry firms and industry organizations, but also include representatives from organized labour, the Ministry of Forests and Range, and WorkSafeBC.

The council is working to build a culture of safety within the forest industry by promoting measures contributing to safety, developing training programs and encouraging companies to establish an internal safety infrastructure.

Some of the Council's potential activity involves urging the public sector to adopt measures that industry believes would be conducive to improved safety. However, the Council cannot initiate reforms within government or issue policy direction to ministries or agencies because it lacks two important characteristics:

- accountability to the Crown, and executive authority that can be used to set or enforce public policy; and
- both the regulatory responsibility and statutory advisory power that some Crown agencies and independent authorities have.

The Forest Safety Ombudsman shares offices with, and receives administrative support from, the B.C. Forest Safety Council. The ombudsman position was established by the council in 2006 to provide industry with a neutral agent through which to voice any sensitive concerns in confidence, and to act as an industry advocate.

Leadership and appropriate organization for making safety a priority are lacking

The Forest Safety Task Force concluded that a wide range of actions were necessary to radically reduce deaths and serious injuries of forest workers. We have grouped the actions that we expected to find in place in a comprehensive strategy for such radical reduction, under three headings: leadership and appropriate organization, appropriate mechanisms and appropriate reporting.

- Having leadership and the appropriate organization in place means, for example, that leaders update existing policy direction to serve the forest worker safety goal. It means assigning leadership responsibility for planning and for delivering programs of sufficient intensity and duration to eliminate forest worker fatalities and serious injuries.
- Having appropriate mechanisms available means providing adequate systems, financial investments, incentives and human capital investments to meet the elimination goal.
- Having appropriate reporting in place allows those responsible for change to monitor progress and adjust both organization and tools to ensure improvement. Appropriate reporting informs legislators and the public as to the progress being made.

If the forest worker safety initiative is to succeed, and strategies to achieve the zero fatality goal are to be effectively coordinated and managed, clear leadership is vital.

The Forest Safety Task Force recommended government undertake reforms in a number of areas that would require clear policy direction. We expected government to have assigned one ministry or Crown agency the lead responsibility for coordinating the many government actions needed to bring about change. Instead, we found that no organization within government has been given such a role.

No ministry or other government agency has overall leadership responsibility for forest worker safety

We found that five ministries and other government agencies in the province currently have major roles related to the forest industry and various aspects of worker safety (see sidebar). However, none of these organizations has been assigned overall responsibility for

Leadership and appropriate organization for making safety a priority are lacking

leading or managing public sector efforts towards achieving the elimination of fatalities and serious injuries. This means that the profile of the forest worker safety effort is not what it should be to drive change within the public sector.

Government agencies with roles related to the forest industry and aspects of forest worker safety

The **Ministry of Forests and Range** is charged with managing, protecting and conserving Crown forest resources. Most forestry in British Columbia takes place on publicly-owned Crown lands. The ministry issues timber licences and other permits to cut Crown timber, and oversees about 120,000 kilometres of service roads (maintained by industry). It is also charged with maintaining a competitive forest industry. In 2003, the ministry established a program to auction off 20% of Crown timber as a way of determining market-based prices for all Crown timber.

The **Ministry of Transportation** sets standards for commercial vehicles and their operation and undertakes vehicle safety inspections. It also oversees the design and maintenance of provincial public thoroughfares and designated roads within municipalities. It has jurisdiction over the approximately 45,000 kilometres of provincial public roads and highways in the province, but not over the 650,000 kilometres of resource roads, which include service roads normally used by log haul trucks. (Such service roads are typically unpaved, can vary greatly in physical condition)

The **Ministry of Labour and Citizens' Services** is responsible for employment standards, workplace safety standards and labour relations rules. It is also responsible for administration of the Workers' Compensation Act, the enabling legislation for WorkSafeBC.

WorkSafeBC, an independent agency governed by a board of directors appointed by government under the Workers' Compensation Act:

- establishes and enforces regulations, standards and guidelines for occupational health and safety;
- maintains workplace health and prevention programs;
- operates a workplace insurance program to provide compensation to injured workers; and
- protects insured employers against liability (that is, employees or their dependents cannot sue an insured employer for negligence or for causing injury or death).

WorkSafeBC provides core funding for the B.C. Forest Safety Council (described earlier) out of levies it charges forest industry employers. It also operates the TruckSafe strategy, which aims to improve the safety of the trucking industry in partnership with the Ministry of Transportation and ICBC (see below).

The **Insurance Corporation of British Columbia** (ICBC) is a provincial Crown corporation that offers universal auto insurance to British Columbia motorists, issues driver and vehicle licences and provides vehicle registration services for drivers and vehicles operating on BC highways. As an auto insurer, it insures the public for the costs of accidents involving log hauling vehicles on highways.

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While WorkSafeBC and ICBC could have a significant impact on improving forest worker safety, neither has the authority to issue executive orders, coordinate ministry actions or initiate policy change within central government. Their impact is limited by their respective enabling legislation.

Even within their respective mandates, we found that neither body is focusing on the forest worker safety commitment. ICBC, for example, is aware of the chronic safety issues posed by log haul trucks on the province's highways, but it has not targeted that sector of commercial trucking for special policy attention. WorkSafeBC, though aware of the ambitious target of the elimination goal, has not expanded its inspections and enforcement activities or staffed these activities to reach all of the smallest contractors in the forest industry on a regular basis.

No ministry has yet taken up a leadership role to direct forest worker safety improvements. Both the Ministry of Forests and Range and the Ministry of Labour and Citizens' Services have areas of responsibility specific to forest worker safety, but neither has applied sufficient resources and effort to initiate the substantial changes required.

The Ministry of Labour and Citizens' Services, which says its role is limited in the area of workforce safety, defers to WorkSafeBC. So, too, does the Ministry of Forests and Range, expecting WorkSafeBC to ensure that operational practices in Crown forests and forest service roads are not endangering workers. This reflects the Ministry's reluctance to accept wider responsibility for actively advancing forest worker safety (see sidebar). The ministry's vision contemplates pursuing forest stewardship jointly with a forest industry that has an exemplary safety record, but in fact the ministry is passing off all active responsibility for safety to WorkSafeBC.

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Consequences of the Ministry of Forests and Range not yet accepting a wider regulatory role over forest worker safety:

- While WorkSafeBC regulations state that the ministry, as owner of Crown land and forest service roads, carries some duty of care, it is not clear that the ministry recognizes this responsibility. For instance, when WorkSafeBC held the ministry partially responsible (as the owner of a forest road) for a 2006 log haul fatality near Mackenzie, the ministry disagreed that its contractual arrangements contributed to the incident.
- The ministry does not take an active part in crucial forest service road safety considerations. Its recent announcements to increase the harvesting of beetle-killed pine in the Interior, for instance, have not mentioned the potential safety impacts of this expanded allowable cut – and the ministry does not require risk assessments before it issues permits that will result in higher traffic volumes. The Forest Safety Task Force, however, has clearly noted that safety could be compromised by "rushing production in short time frames, thereby promoting overcrowded cutting areas, excessive traffic volumes on back-country logging roads, overloaded logging trucks and long shifts that put workers at risk from fatigue."
- The ministry has never determined whether the entities it licenses to cut timber have an adequate safety structure. Timber sales go to the highest bidder regardless of that bidder's safety record or safety infrastructure. The ministry intends to start accepting bids only from companies that have passed a safety prequalification, but that requirement is not yet in place. As a stopgap, consideration is being given to simply requiring bidders to be registered with the certification program. In our view, however, registration is not certification and therefore signifies little in terms of commitment.
- Planned changes to regulations for resource roads (those roads used jointly by different industrial companies) do not create new ministry responsibility for forest worker safety. The intention of the ministry is that the forest licensees (and other companies) who use the roads will share responsibility for safety through contractual agreements with each other – with the ministry accepting little responsibility in this area.

The effectiveness of ministry compliance and enforcement efforts is also limited. Compliance and enforcement officers have the authority to make a report of any unsafe practices and conditions they encounter on lands under their jurisdiction generally. However, some types of infractions are beyond their authority to address, such as evidence of endangering a worker or failure to provide adequate supervision. These should be reported to a body such as the RCMP or WorkSafeBC.

Even where ministry personnel can use their regulatory powers (for example, enforcing speed limits or reporting incidents of unsafe practices and unsafe driving), we found that they often do not. Part of the reason for this is the competition for their resources and attention. The Ministry of Forests and Range has reported that it conducts more than 16,000 inspections each year to protect the environment and to combat forest crimes such as timber theft

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and arson. Inspections to identify unsafe practices are limited to providing truckers with a pamphlet about their legal obligations when using forest roads.

Responsibility for safety is especially fragmented for log hauling

The Ministry of Forests and Range is not empowered to intervene every time an unsafe situation is suspected or discovered on resource roads. Rather, it has to refer some matters to the appropriate authority. Such a hand-off of responsibility for regulatory infractions from one agency to another can, if not coordinated, work against achieving good safety. For instance:

- The Ministry of Transportation has authority over the condition of vehicles and roads on provincial highways, *but not on forest service roads or resource roads*. Only on public highways may the ministry's Commercial Vehicle Safety and Enforcement staff inspect, ticket or seize vehicles that do not meet minimum standards. (Staff may be asked to help investigate incidents on service roads by other bodies such as the RCMP, but only as expert advisors.) We consider this to be a notable regulatory gap.
- The RCMP has authority on all types of roads—including resource roads—and may collaborate with other authorities in spot checks. However, we were advised that police authorities have few resources to devote to monitoring forest service roads. This works against achieving the elimination of fatalities and serious injuries.
- ICBC is not actively pursuing the option of regulating safety in log hauling. Whatever general provisions ICBC applies to commercial vehicles are the same provisions it applies to logging trucks on public highways. The class of license that allows a trucker to operate on paved roads in the Lower Mainland also allows him or her to haul timber at high speeds on unpaved roads and steeper slopes than permitted for public highways. No ICBC driver education or incentive programs are specifically targeted at reducing serious injuries and fatalities in log hauling. Thus, while there is no regulatory gap here, neither is any special effort aimed at reaching the elimination goal being made.

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We recommend that government assign one ministry to lead in issuing policy direction including:

- **initiating regulatory change.**
- **closing jurisdictional gaps.**
- **assigning resources to meet government's safety commitments.**

Beetle-killed pine stockpiled in Prince George. (OAG staff photo)

Leadership and appropriate organization for making safety a priority are lacking

The safety infrastructure that once existed in the industry has eroded with the shift to contracting out

The Forest Safety Task Force made clear that safety is everyone's responsibility. When the group's report was released, one member, a corporate executive officer, observed that "the entire industry should acknowledge a long-standing bias to discount the importance of safety. There needs to be a fundamental change in thinking [that] will take time, leadership and resources."

However, as the Forest Safety Task Force foresaw in 2003, one consequence of the continuing trend to contracting is that large forest firms have effectively transferred the responsibility for providing an adequate safety infrastructure to their contractors.

Most companies in the forestry sector have few employees. Neither those small companies nor the larger firms that contract them are creating an integrated safety structure to support workers. As a result, there is no coordinated safety system of prevention, inspection and supervision extending through the largest company down to its contractors and independent operators.

The current expectation in the industry is that the smallest contractors and subcontractors (firms that may typically employ five or fewer workers) will carry the burden of worker safety. Those companies in turn subcontract to many individual fallers, truckers and other one-person companies. Such an arrangement, the evolution of which is captured in the following text box, not only disables the safety infrastructure, it also splits the responsibility for profitability from the responsibility for safety.

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The size and make-up of forest companies have evolved in recent decades

British Columbia's forest industry was at one time largely made up of major companies that performed their own forestry work to supply their own mills. This was especially the case on the Coast, while in the Interior some of those larger firms contracted out harvesting and trucking.

Today on the Coast, rising costs and declining competitive advantage have prompted the retreat of the large companies, leaving behind a series of smaller firms that survive by specializing in certain activities. Almost all harvesting and trucking are now contracted out by the large firms. In this respect, the Coast has become more like the Interior, where small contractors have always been a large component.

The trend to contracting out was promoted by the 2004 Munroe labour arbitration decision, which impacted the coastal forest industry and labour union. The decision created more flexibility in work hours and in contracting, but has since resulted in the larger forest companies accelerating the trend to contracting out harvesting and trucking activities to small contractors. On the Coast, this means that small contractors and subcontractors now perform essentially all work on the ground, where the risks are highest.

The Forest Safety Task Force, in recognizing the significant safety challenge that these small employers faced in 2003, commented:

> "As a rule, these small contractors and subcontractors are charged with carrying out some of the most hazardous work and they most often lack resources, supervisory staffing and in-house safety expertise and training programs of the large companies. This has created a safety vacuum on the forest floor."
>
> – Final Report of the Forest Safety Task Force, p. 44.

Industry has become less able to shoulder responsibility for safety in the forests

Over 90% of the 7,800 registered employers in the forest industry were 1-3 person operations, according to WorkSafeBC. Most of these work as contractors to the large timber licence holders, First Nations groups or to companies successful in winning bids to harvest timber through the Ministry of Forests and Range timber sales process. Exhibit 4 indicates how this structure is manifested as a chain of firms working under contract but not necessarily sharing a common safety infrastructure.

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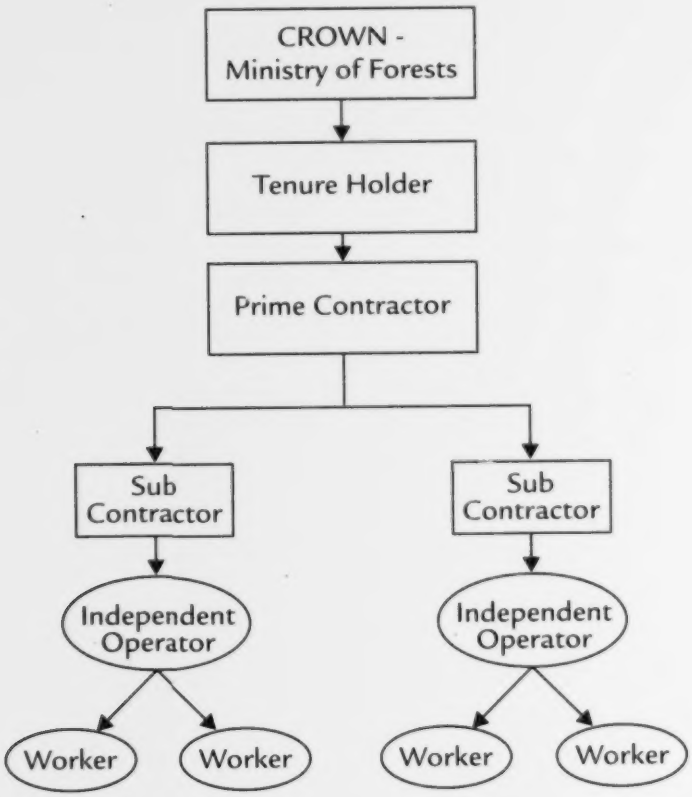
Exhibit 4:

The Ministry of Forests and Range sells the right to harvest timber to tenure holders who then subcontract the actual harvesting and hauling work.



Source: Final Report of the Forest Safety Task Force, 2004. p. 43.

In its current state, the industry has numerous very small companies, too tiny to support the needed safety infrastructure that once existed in larger integrated companies. In addition, many of the smallest "companies" are actually self-employed individuals and so fall outside the safety inspection and education structure that WorkSafeBC could provide to them. While WorkSafeBC is of the view that self-employed contractors are, in fact, workers within the meaning of the Workers Compensation Act and therefore subject to its provisions, this view is not shared by others in the industry.

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One step that WorkSafeBC has taken in response to the task force's report is to propose that part 26 of the Occupational Health and Safety Regulations be amended to require that all forest companies, regardless of size, take responsibility for many of the safety provisions they have not been acting on voluntarily. The draft amendments were moving through a public consultation process at the time of this audit.

We recommend that the Ministry of Labour and Citizens' Services consider how best to ensure that a robust safety infrastructure is directly supporting every forestry work site.

What does an exemplary safety infrastructure look like?

A good safety infrastructure has layers of activity that, as a whole system, protects workers. That infrastructure imposes an expectation of safe practice, one that everyone accepts as a personal standard. Safety infrastructure is manifested, for example, by worker access to immediate supervision, advice and support within an operation that was planned with worker safety as a foremost consideration. It is manifested by managerial action that penalizes workers and supervisors who tolerate risk and promotes or rewards only those whose actions consistently underscore the primacy of safe practices. It is manifested by management's unwillingness to compromise on issues that could negatively impact worker safety.

Infrastructure requirements become clearer when we consider an industry that is also inherently dangerous but is managed safely. Commercial aviation is not just governed by stringent rules and standards, it functions on an assumption of safety that everyone accepts and abides by, without exception. The pilot is rigorously trained, experienced and licensed and has responsibility for the plane's safe operation when airborne or otherwise. Before a flight, the pilot checks its physical condition and technical functions, recording status in a log book as standard procedure. There are strict checklists the pilot must complete, no matter how sophisticated the aircraft. Any one of a range of detected problems results automatically in a *no-go* decision, regardless of the pilot's know-how, innovative capability or experience.

The cockpit has finely tuned instruments with failsafe backup to guide the pilot's decision-making and complement visual information. The pilot works alone, but is supported by co-workers not immediately present. He or she is in radio contact with ground control personnel who have sophisticated tracking and communication devices to alert the pilot to weather or other risks and to respond to requests for assistance or clarification. A flight plan has been filed so that ground control has an advance record of intentions. The pilot is also in radio contact with any other aircraft in the vicinity as a flight progresses.

Aviation operations such as this exist within a realm of very tight cost pressures, among operations of various sizes and within a very competitive market.

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Contracting out puts major companies in a difficult position when it comes to advocating and enforcing safety

When the major forestry companies choose to contract out harvesting and hauling work, they are in effect establishing a commercial relationship that precludes their direct involvement in operations—and thus in the control of on-the-job safety.

Responsible companies do take an interest in the safety environments that their contractors have in place. However, they cannot be too specific in ordering a contractor to operate safely or else they imperil the legal need for "contractual separation." They can only offer advice or guidelines that attract no legal liability and do not compromise contractual obligations.

Industry efforts modeling good safety behaviour

Two initiatives in the Interior we learned of during our audit demonstrate effective forest industry effort to consider forest worker safety on roads.

- Road use agreements have been established by a timber licence holder on some heavy-use forest service roads. These agreements coordinate use of the road by various contractors' trucks so that the greatest mutual benefit to all users is achieved. A section of road may be designated one-way, for example, to facilitate travel on a narrow section of road. The agreements also manage the maintenance of the roads and cost-sharing among users.
- Some mills in the Interior refuse to pay for overloads. Drivers who arrive at the mill's scales carrying more than their truck's rated load are not given credit for the extra logs. Since much of the cost of forestry work relates to transportation expenses, this initiative is a clear instance of firms linking safety concerns to production planning.

Self-employed companies represent a large challenge if government is to achieve the zero fatality goal

WorkSafeBC has regulatory jurisdiction over all workplaces in the province where an employer/employee relationship exists, through the Occupational Health and Safety Regulations. Unless such a relationship can be legally shown to exist, WorkSafeBC has no basis for applying these regulations. This means that WorkSafeBC cannot inspect the self-employed: if these individuals are deficient in safety knowledge, run poor equipment or fail to use best practices, there is no dependable way to inform them or to apply sanctions so that they change their ways. This is a significant regulatory gap for an

industry that relies heavily on independent truck operators and independent fallers.

An employer-employee relationship must also exist for an entity to be part of the provincial workers' compensation system. Being able to operate outside the system creates three notable problems.

First, self-employed people are not required to register with WorkSafeBC under the Workers Compensation Act and are not required to carry insurance coverage. As a result, many in the forest industry may choose to work without the benefits or costs related to such insurance. This not only leaves those workers' personal health vulnerable, it also means that when an individual is injured, the public medical system has to absorb the cost of treatment, hospitalization and rehabilitation which the workers' compensation system would normally pay for.

Second, forest workers who *do* take out coverage may underinsure themselves either because they want to save on premiums or do not know how much insurance coverage they need to offset risks. Lack of sufficient coverage can have serious financial consequences for families affected by a forest worker's injury or death. And, as with no coverage, such a situation can result in the public health care system and social service agencies having to absorb extra costs when families are left without a breadwinner.

The third problem is a lack of administrative tracking. Operations involving 1 to 5 workers do not have to file a "notice of work" with WorkSafeBC that records the location and details about their operation. This leaves the government with no method for determining who these small players are, how many there are or where they are working.

The large self-employed component of the forestry workforce, not required to comply with the Workers Compensation Act or its Occupational Health and Safety Regulations, represents a substantial challenge to the elimination of fatalities and serious injuries.

We recommend that the Ministry of Labour and Citizens' Services bring self-employed forest workers under the province's occupational health and safety regulations.

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Neither government nor industry has acted to discourage on-the-job risk-taking or worked to dispel the attitude that accidents are inevitable

We found several conditions in the industry that appear to encourage employers to take risks with worker safety. As long as these conditions are allowed to persist, government will have difficulty achieving its forest worker safety goals.

Economic drivers are a key threat to safety

Two economic arrangements are encouraging risk-taking in the forest industry:

- cutting out safety-related expenditures (which are not mandatory) to reduce the cost of a tendered bid; and
- over-working to meet contracted obligations and putting undue production pressure on an operation.

Many of the smallest firms in British Columbia carry large financial burdens. When operational costs are cut to the bone, expenditure on safety measures (from providing training to having a stand-by emergency evacuation vehicle always available) become discretionary if it means the difference between winning a bid and getting no work at all. This is the reality faced by many of the small firms—the most numerous in the industry.

Some observers have termed this situation a "race to the bottom." When small firms win bids under these conditions, the production pressures on their employees to keep costs down are severe. Studies show that increasing accident levels are strongly correlated with increasing daily output per faller. These small firms therefore risk sustaining even more injuries and fatalities when trying to cope financially.

No effective deterrent prevents companies with poor safety records from operating in the industry

The Forest Safety Task Force recommended in 2004 that a health and safety prequalification standard be met by all firms working in British Columbia forests. A threshold of safety performance and safety infrastructure has not in the past been imposed on the forest industry by the provincial government.

Leadership and appropriate organization for making safety a priority are lacking

One of the most significant challenges is to ensure that all of the smallest companies are captured by any rigorous prequalification scheme put in place. Another significant challenge is to ensure that unqualified companies do not continue to work under any circumstances. However, if the zero fatality goal is to be met, the government is going to have to start requiring that firms demonstrate safe operation and organization as a precondition for working in the industry.

Two policy options to bring about this change have been applied successfully in other industries such as mining and the oil and gas industry:

- Base the contract-required output on safe working conditions as defined by third-party research. In this model, use of all new technologies is encouraged, but only if they can be shown not to unsafely overwork people or under-maintain machines. This approach tends to standardize practices at an optimal level of safe working conditions.
- Require employers to create a safety infrastructure within their organizations as a precondition for bidding. Inspections during the operating phase should verify that the safety investment and knowledge is in place. This remedy is intended to remove safety expenditure as a variable in the bidding process.

The first option above assumes that getting workers into heavy equipment and off the ground (where they are most vulnerable) will improve the safety record of the industry. The model therefore encourages technological adoption to achieve this.

The second option is in line with the prequalification reforms proposed by the Forest Safety Task Force in 2004, in which only safety certified companies would be eligible to bid on government timber contracts. This initiative, now known as the SAFE Companies Certification program, being promoted by the BC Forest Safety Council and the Ministry of Forests and Range requires companies to submit to and pay for an assessment of their existing safety infrastructure. Companies meriting the SAFE Companies designation will be entitled to bid on Ministry timber sales or work as subcontractors to those succeeding in a bid.

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Implementation of this prequalification process is moving slower than planned and was not complete at the time we were writing this report. There was no requirement that companies be certified in order to work in British Columbia forests.

While firms may voluntarily seek certification, one obstacle to the uptake of certification, however, is that very few of the smaller contractors (those with 20 employees or fewer) feel that they can afford the certification audit fees that are required to be paid after registration in the program. Therefore, with no requirement to become certified, many firms are not likely to do so. This means the program may not serve the smallest contracting firms in whose operations the majority of serious injuries and deaths occur.

We note that even if small companies do decide to become certified, one shortcoming of the certification process is that it lacks the rigour that applies to certifying larger companies. Small companies get "certification lite," a version of safety certification more about paperwork than activities that would contribute to a strong safety infrastructure in the company.

Nonetheless, we think that this safety certification initiative may succeed as the prequalification objective for the wider industry — as long as only safety-certified contractors are allowed to bid for forestry work everywhere in the province. Currently, however, there are no concrete plans to put such a universal prequalification system in place.

We recommend that the Ministry of Labour and Citizens' Services ensure that a mandatory prequalification requirement for all firms is put in place, ensuring that forest industry firms, regardless of the size of the entity, be required to demonstrate safe operation and organization as a precondition for working in the industry.

Current financial rewards to safe operators are ineffective

The Forest Safety Task Force's second recommendation was that all employers treat safety as an overriding concern. Reference was made to establishing an industry-wide rate incentive program, presumably delivered through the workers' compensation system, to reward employers for integrating safety into their operations.

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We found that such an incentive system still faces the same two obstacles it did when the task force issued its report in 2004. Both obstacles pertain to that largest single component of the industry, the small firms.

- Self-employed contractors do not participate in the workers' compensation system, so the proposed incentive program is of no consequence to them.
- Small firms, operating on tight financial margins, may not be in business a year later when a rebate on their WorkSafeBC premiums would be realized. Again, therefore, the incentive program is of little consequence to them because future savings occur far down their priority list. Saving a dollar today is more critical to their survival.

For several years now, WorkSafeBC has been rewarding safe operations in all high risk industries by providing rebates on premiums. The SAFE Companies initiative takes this process one step further by inserting a safety certification and audit process into the rebate system. In our view, however, this approach will be ineffective in contributing short-term gains toward a better safety record for the industry. The smallest firms in the industry, where the greater serious injuries and fatalities occur, are not likely to participate in the existing incentive systems for the reasons provided.

We recommend that government consider economic incentives, outside the workers' compensation system, for rewarding safe operators. These should reach down to the smallest firms and the self-employed, to encourage faster progress toward achieving the forest worker safety goals of government.

Safety-related regulations are not being enforced rigorously

The opposite side of rewarding companies for safe practice is penalizing those companies that do not comply with existing safety-regulated provisions. Enforcement and ongoing monitoring are critical for improving safety.

We concluded that neither the Ministry of Forests and Range nor WorkSafeBC had a sufficiently aggressive approach to inspections and enforcement. We noted two impediments to effective enforcement:

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- the amount of government effort and resources applied to inspections and enforcement is inadequate; and
- there are legal restrictions on action that face some agencies and ministries.

Safety inspections by Forests and Range on cutblocks are rare, as is monitoring of speed on forest roads. Staffing is inadequate for undertaking broad and repeated intervention work. As well, the ministry's Compliance and Enforcement staff can often only observe violations; they are not empowered to intervene.

WorkSafeBC's inspections and prevention efforts declined from 2002 to 2004, just at the time when large forestry firms were disappearing and many small contractors were being hired by forest licensees to do the most dangerous work. More recently, some small increase in prevention effort has occurred, but that increase has not been matched to the risk presented by the loss of forest worker safety infrastructure.

One of the Forest Safety Task Force recommendations was that WorkSafeBC clarify and implement compliance requirements by May 2004 to prevent transferring of responsibility for safety. The Task Force held the view that tenure holders and prime contractors should not delegate this responsibility.

In 2005, the Ministry of Labour and Citizens' Services stressed the importance of WorkSafeBC investing enough resources to match the challenge of dealing with more contractors and smaller operators who lack the safety infrastructure of the large firms.

If fatalities and serious injuries are to be eliminated, we believe that WorkSafeBC should be rigorously inspecting performance, following up on infractions and punishing non-compliance as necessary.

We recommend that existing health and safety regulations be more vigorously enforced by WorkSafeBC through inspections, follow up on infractions and punishment of non-compliance.

Leadership and appropriate organization for making safety a priority are lacking

The long-standing attitude within the industry that "accidents are inevitable" poses a major impediment to improving worker safety

During our audit, we asked people in the industry and in government whether they were motivated to strive for the elimination of fatalities and serious injuries. Most said definitely yes. We then asked whether it was a realistic goal to have. Most interviewees said no. Finally we asked whether it was the right goal to have. Almost everyone replied that while it was the only ethically acceptable goal to have, it was unrealistic.

Clearly, the Task Force's "stretch" goal of eliminating deaths and serious injuries means little up against the settled belief that workers cannot escape inherent dangers (see sidebar). Attitude is everything in safety, and reversing long-standing ideas that accept risk will be very difficult. Most in the industry and in government continue to be resigned to the likelihood of a relatively high rate of serious injury and fatality, even though recent efforts to publicize forest worker safety issues have made people more mindful of the risks.

One study indicated that attitudes about safety can be grouped into five main categories. For each of the five categories, an example of an anti-safety attitude is given, illustrating the challenge that government faces if it is to change thinking:

- safety supervision (e.g., working alone is okay)
- industry norms and culture (e.g., the forest worker is tough, independent and skeptical about safety needs)
- approach to risk-taking (e.g., everyone does it)
- management behaviour (e.g., it's okay to offload safety responsibility and to stop investing in safety infrastructure generally)
- operator management (e.g., it's okay to operate over long periods without a significant break)

A significant effort is therefore required by government to displace those beliefs. This effort will, in our view, require an investment of money, management effort and regulatory measures.

The main attitude-shifting remedies tried since the Forest Safety Task Force reported are training initiatives. However, training alone will not change the attitude of the industry. Training cannot supplant tolerated unsafe practice, such as inadequate supervision. Training cannot create a regime of regular safety inspections and

Leadership and appropriate organization for making safety a priority are lacking

effective penalties. And training cannot establish an adequate safety infrastructure within small companies unable to supply the various essential components of such an infrastructure. In fact, training may be the least effective remedy to apply to an industry that has a serious attitude problem toward safety.

It may be that technical competence is not the key safeguard in the most dangerous work in the forest industry, hand falling. Even recently certified fallers will, in the absence of rigorous supervision, soon return to previous risky behaviours, noted experts whom we interviewed. Most fallers who have died in the last few years were safety-certified and experienced. For example, one report addressing faller deaths associated with cutting in decadent hemlock stands between 1995 and 2001 found that the average casualty had more than 15 years' experience as a faller. It may even be that experience contributes to, rather than reduces, the level of risk a worker will tolerate. Technical competence and experience can often create a sense of false confidence, leading to greater risk-taking.

Experience from other industries, such as mining, shows that making the change to a culture of safety requires both top-down and bottom-up strategies and investments. Top-down strategies are used by management for the most part, while bottom-up strategies are effective if they incite workers to initiate change in their attitudes and behaviours:

> *Top-down strategies* — These include safety-minded leadership and supervision, rewards, external inspections and follow-up. Hospitals in British Columbia, for example, were able to reduce the incidence of staff injury over the last 10 years by applying these methods. Offshore oil rig companies have also reported success in replacing a long-standing risk-taking "get it done no matter what" culture with a safety-minded culture through supervision, team orientation and rewards. And in the Alberta oil and gas industry, a significant top-down emphasis—from instilling safety at recruitment to rewarding and promoting staff—appears to have developed a strong safety culture.
>
> *Bottom-up strategies* — One example is Forestry TruckSafe (modeled after WorkSafeBC's and ICBC's TruckSafe program), an awareness initiative by the B.C. Forest Safety Council which appears to be changing attitudes toward unsafe hauling

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practices. The purpose of Forestry TruckSafe is to remind owner-operators that the single ultimate objective—even above meeting delivery deadlines—is to make it home after the workday unhurt. Pride of profession and pride of skill is intended to displace the defeatist attitude that the industry's safety record cannot be changed for the better.

Both types of strategy aim to interrupt a work culture tolerating unsafe practices. Either type can utilize input from other industries to break up settled views of how the work is performed or managed. Without such external input by those having relevant experience in safer industries, a work culture is likely to revert to its conventional methods and results.

We recommend that government leadership on safety seek direct input from other natural resource-based industries having better safety records, such as mining.

Harvested timber at a roadside will be hauled to a sorting yard. (OAG staff photo)

Mechanisms for making safety a priority are, overall, inadequate

A number of mechanisms—including planning and supervisory systems, incentives and human capital and financial investments—are actively used in many natural resources extraction fields (such as mining) to ensure that worker safety is a top priority. After the government committed in 2003 to radically reducing fatalities and serious injuries, we expected preventive mechanisms to be enhanced. We also expected the magnitude of the radical reduction challenge, given the longstanding record of the industry, to be well understood by ministries and agencies that could potentially play a part.

Planning for safety is weak in forestry work

Planning is crucial for anticipating risks to workers. We therefore expected to find safety risks being identified and consideration given to such elements as:

- road location and design;
- locations of known hazards such as slide areas;
- slope characteristics;
- locations of wildlife trees and dangerous trees, and
- harvesting and yarding methods.

After risks are identified, solutions for each risk should be determined and resources organized to carry out the solutions. We also expected that, in issuing cutting permits, the Crown would allow sufficient time for planning a safe operation.

Instead, we found no evidence of those responsible for planning being required to make safety the primary consideration. Also absent was an independent assessment process to show whether work was being carried out as planned. Both of these conditions contrast with WorkSafeBC's advice to forest licensees and contractors that they discuss with the Ministry of Forests and Range or other land owner any safety issues arising from the site plan, and document these discussions and the proposed resolutions. According to those we interviewed, documenting safety planning discussions is rarely done in the industry.

Mechanisms for making safety a priority are, overall, inadequate

Harvest planning is not required to consider safety

Before 2004, tenure and timber licence holders were required to submit harvesting site plans for vetting and approval by ministry officials. These plans described in detail the harvesting operations, from cutblock design and size to the harvesting method and location of haul roads and landings. There was no explicit requirement to consider worker safety unless harvesting plans conflicted with provisions of the Occupational Health and Safety Regulations.

In January 2004, the provincial government brought in the Forest and Range Practices Act (FRPA), changing how forest management and harvesting plans are developed and approved. Under FRPA, forest stewardship plans are the only plans subject to mandatory ministry review before companies can begin harvesting on Crown land. These plans often cover a very large area. (According to a 2006 Forest Practices Board report, the average size covered by forest stewardship plan is 300,000 hectares.) Few details are required in these plans on the location or timing of harvesting and worker safety considerations are not listed as one of the matters to be taken into account in the plans. (see below).

Government has identified 11 resource and environmental objectives for FRPA, all of which are overridden by a 12th objective of not unduly reducing the supply of timber from British Columbia's forests. These considerations are:

- soil
- timber
- wildlife
- fish
- water
- biodiversity
- cultural heritage resources
- resource features
- recreation resources
- visual quality
- forage and associated plant communities.

Source: Forests and Range Practices Act [S.B.C. 2002]

Mechanisms for making safety a priority are, overall, inadequate

Conflicting regulations are sometimes forcing workers to make unsafe choices

If forest worker safety is to be an overriding consideration—as the Forest Safety Task Force recommended it should be—then it is reasonable that conflicts between various legislative and administrative requirements should be settled in favour of the safest option. Many whom we interviewed in industry indicated that this is often not being done.

For example, certain provisions of the Forest and Range Protection Act (FRPA) are sometimes inadvertently encouraging workers or their supervisors to undertake more risky activities to meet environmental needs. A Western Fallers Association report noted that fallers frequently take added risks to meet the retention cutting aims within and at the margins of cutblocks.

While in law the requirements of the Occupational Health and Safety Regulation take precedence over other requirements, in practice operational planning and production pressures often focus attention more on timber extraction than on elimination of risks to workers.

We recommend that robust safety planning in all aspects of forest operations should be made mandatory by the Ministry of Forests and Range. (See following page for possible strategies).

What can be done to improve planning for safety in forestry?

Planning for safety means forcing choices that favour the safest form of operation.

- The first choice should always be to move workers off the ground and into the protection of a cab whenever possible. Workers operating machinery from within a protective cab are much less likely to be injured or killed than those working out in the open.
- Where operating within a protective structure is not feasible, the next best choice should be keeping a safe distance in space or time from a risk. For example, fallers can use remote control jacks to support leaning trees and explosive charges to fell danger trees.
- If neither of the above options is feasible, then the best safety equipment and practices should be used. However, if it is determined that the residual risk remains too high, no harvesting should be permitted.

Good safety planning might therefore prohibit outright certain practices if research and experience show they are too risky. For example, the following practices that show up repeatedly in WorkSafeBC's "lessons learned" literature might be candidates for prohibition to protect the safety of workers on the ground:

- Fallers or yarders working upslope from other workers where the danger of runaway timber and debris is high.
- Fallers working on or under cliff faces.
- Fallers attempting to clear felled trees that have become hung up on standing trees, without consulting a supervisor first.
- Fallers attempting to create feathered edges at the margins of a cutblock.

Aside from these general lessons, good safety planning also involves timing the separate tasks on particular work site. For example, work should be carefully sequenced when both hand-falling and mechanical harvesting are used.

If hazards identified in planning cannot be mitigated, don't cut

If part of a harvesting site is clearly too risky to work on, then operations in that area could be prohibited. For example, a blowdown area (where trees may be lying under tension at various angles) might not be the best place to use hand fallers. If the area cannot be safely harvested mechanically, one option to consider is that it be left alone.

The tendency in the industry is to feel compelled to get every last tree. That attitude could be eliminated by good operations safety planning and strict supervisory control on the site.

Environmental conditions can render even a safe plan unworkable. If weather conditions such as heavy snow, high winds or saturated ground interfere with the safest planned method of operations, then work should be delayed until conditions improve and operations can be carried out safely.

Lay out the work site with safety foremost

Adequate planning ensures the separation of different stages of the work in time or distance. Incidents where fallers drop trees on other workers or equipment are usually the result of confined working distances or miscommunication.

All access roads, landings and helicopter pads should be planned before the project or operation begins and then constructed for safe operation.

(Source: WorkSafeBC's lessons learned materials were used as a basis for this planning discussion.)

Mechanisms for making safety a priority are, overall, inadequate

Forest professionals are not required by law to consider safety

FRPA assumes a planning regime in which reliance is placed on self-regulated professionals to properly plan forestry activities, and to certify the forest stewardship plans and other forest planning and practices in accordance with the resource and environmental objectives (see sidebar) set by government for forests and range. No mention is made of forest worker safety in the context of these certification responsibilities.

All forestry professionals in the province must be members of the Association of Professional Foresters. The Foresters Act recognizes the role of the Association in protecting the public interest and in upholding the principles of stewardship of forests, forest lands, forest resources and forest ecosystems. However, the Act does not explicitly mention the responsibility to promote safe forestry practices. In our view, forestry professionals could potentially play a valuable role in planning for worker safety.

We recommend that the Ministry of Forests and Range seek two amendments to the Foresters Act:

- **Make forest worker safety an explicit object of the Association of Forest Professionals under section 4 (2).**
- **Include in the definition of 'practice of professional forestry' explicit mention of competence in forest worker protection.**

Workers on the ground can face challenging terrain before and after harvesting. (OAG staff photo)

Mechanisms for making safety a priority are, overall, inadequate

Safety supervision is very uncommon in timber harvesting and hauling.

Supervisors instruct, direct and control workers engaged in operations on a work site. In most industries in the province, supervisors also have general responsibility for health and safety conditions on the site.

Supervision broadly includes in this context:

- ensuring the health and safety of workers;
- knowing hazards on the work site;
- ensuring workers are made aware of all known hazards and those that are reasonably foreseeable;
- knowing the provisions of the Workers' Compensation Act and its regulations; and
- ensuring that workers comply with that Act and its regulations and orders.

Provision of supervisory oversight is not optional. General duties of employers under the Occupational Health and Safety Regulations require employers, even if they are small contractors, to provide supervision to their workers.

An effective supervisory system has the following impacts on the safety of the work environment:

- decreases at-risk behaviour and increases safe behaviour by using positive reinforcement;
- observes and provides feedback; and
- evaluates safety performance.

We found supervision in the forestry industry to be missing or lacking in its range of responsibility. There are two reasons for this:

First, employers frequently do not have supervisors at work sites because they believe that workers such as fallers and haulers do not need supervising. Many workers may agree with this view, ranking supervision lower than other safety supports. In a recent study, for example, fallers did not see that lack of supervision was a big problem even though they suffer the highest rate of fatalities and serious injuries in the industry. Falling is traditionally regarded as solitary work, done without the involvement or advice of a reasonably accessible supervisor.

Second, even when supervisory personnel are assigned to work sites, they are not always capable of handling all five of the responsibilities listed above. Some evidence to support this is provided by the results of inspections that WorkSafeBC performed at 300 work sites in early 2006:

- A written job description, including duties for supervisors, was present at only 50% of the work sites.
- Only about 33% of all supervisors received training specific to the work they were conducting.
- About 25% of work sites had no designated supervisors.
- Supervisors were not held accountable for effective supervision at 30% of work sites.
- Only 63% of work sites visited had written agreements designating prime contractors responsible for the coordination of all health and safety on the site.
- About 24% of workers interviewed reported that they had not received adequate safety training for either the work they were doing nor the equipment they were using, and 17% of workers were not supervised.

As these results suggest, the attitude around supervision in the forest industry is a significant problem. In equally dangerous natural resource industries such as mining and oil and gas, high levels of supervision and work site control are usually in place. We believe that if supervision was approached in this way and was provided at adequate staffing levels, significant gains in forest worker safety could result.

Some positive change in this area may be on the way. The B.C. Forest Safety Council initiated a supervisor certification program in January 2007. No evaluation is yet available of the impact of this program on safety, or of its ability to supply supervision where it is absent or minimal.

We recommend that WorkSafeBC enforce the requirement that supervision be in place for all forest workers, including fallers and truckers. (See the following page for possible strategies).

Mechanisms for making safety a priority are, overall, inadequate

Much can be done through improved supervision to increase work site safety in forestry.

Ensure supervisors have the necessary authority over practice

- Because supervisors are required to take all reasonable care to prevent harm on the work site, they should have the authority to halt an unsafe practice or condition and to take whatever corrective action is required. Diligence in this regard is considered a basic operational necessity by Occupational Health and Safety Regulations. WorkSafeBC promotes safety supervision actively and can provide any employer with a supervisory checklist to explain the range of controls that any work site should have.

Encourage supervisors to be observant on work sites

- Observation is an important tool for supervisors. Because many workers must operate at a distance from a supervisor, good monitoring and communication systems are needed to enable ready interaction with the supervisor when needed. As well, supervisors should use other forms of interaction, such as reading workers' checklists and log books. Vigilantly observing on-the-job actions and reviewing records and logs are key steps in enforcing safe practices.

Ensure supervisors are supported in using safe practices and persuading others to do so

- The relative importance of safety over productivity has to be demonstrated by what supervisors do and say. If eliminating fatalities and serious injuries is the goal, then there is no such thing as balancing productivity and safety. Safety should take precedence. Supervisors need to know that management clearly supports this intervention philosophy.
- Supervisors' promotion of safe practice should be active on a job site. Daily work-related stress combined with productivity pressures encourage workers in all industries to take risks they should not. Such risk-taking in already high-risk industries simply means that the potential consequences are more likely to be injury or death. Supervisors should be aware of these tendencies and militate against them in all they do.

(Source: WorkSafeBC's published advice on supervision.)

Government has not made safe hauling its priority on resource roads

The main risks affecting log hauling are excessive speed, driver fatigue and other causes of impairment, poorly maintained brakes, over-loaded vehicles, and traffic volumes exceeding road design. Risks can be combined, or complicated by weather conditions, or steep slopes. Careful planning is essential to lessening these risks, as is good supervision that ensures plans are followed and that what is unsafe receives attention.

Traffic volumes on forest service roads and other industrial roads have increased in some areas because of increased harvesting of stands killed by the mountain pine beetle. More trucks using the same road in both directions at all times of day are now common

on many transport routes. As a result, effective traffic control is required. Such controls should be focused on safely directing all road users, including the general public.

As a matter of policy, government has continued to rely on timber licensees and their contractors to accommodate this added volume. On public highways that are affected by increased beetle-wood harvesting, government has promised road improvements to reduce congestion, but on forest roads industry must make any needed road improvements. An allowance made through the stumpage system covers the costs to forest companies for this work. Several agencies expressed their concern that appropriate road design improvements were not undertaken by timber licensees or their agents before increased traffic volume was experienced and that this was leading to additional risk to all road users.

Where a number of operators use a Forest Service road or industrial road, a maintenance agreement between those operators and the timber licence holder should be in place, according to current Occupational Health and Safety guidelines. A licensee must also designate a principal contractor. The licensee or principal contractor should then establish and maintain agreements with all operators using the road. Such agreements and designations are not always put in place before road use is impacted by new user groups.

Road user committees, with representation from all users, have been established in some areas by the timber licensee to set traffic control protocols, control and apportion costs for maintenance activity, and represent the various users' interests. This committee mechanism also allows a group of contractors using the same roads to share knowledge of known hazards or other safety concerns. We found that such road user committees are the preferred method in the industry to manage coordination of traffic and to arrange for the maintenance of roads among groups of users.

We recommend that the Ministry of Forests and Range use its powers to enforce safe use of resource roads. The Ministry should establish and participate actively in resource road user committees.

Mechanisms for making safety a priority are, overall, inadequate

Training forest workers to operate safely faces several obstacles

When supervision and planning for safety are well supported by management and toleration of risk is no longer the predominant view, training workers for increased competence can further contribute to minimizing risk.

A recent survey indicated that most forestry workers develop the skills they need on the job and build skills through experience and through in-house training. Pre-employment training is not preferred by employers as a rule. Contractors report that the most successful sources for new workers are other contractors or companies within the same region, and they generally view schools and placement agencies as poor sources of acceptable workers. There is no existing indenture system for jobs in harvesting and hauling, outside of heavy duty mechanic apprenticeships, nor is there strong support in the industry for establishing one.

Faller training, leading to certification, has been required by WorkSafeBC for a number of years. The vast majority of those certified to date were already practicing forestry workers before they acquired their certifications.

While the positive impact of faller certification on the rate of faller injuries and deaths is inconclusive at this time, we believe that such certification could introduce improved practices and new thinking into work teams that appear to prefer training their own.

There are some existing training requirements that, if enhanced, could make a more significant contribution to safety in the forest industry.

We found that there is no provision requiring would-be drivers of timber haul trucks to reach specific levels of competence before handling large loads on unpaved roads. This is because there is no required training for drivers of larger trucking configurations and drivers of off-highway trucks generally.

The specific truck configurations in timber hauling work, the unusual gradients possible on resource roads and the behaviour of the vehicles under load on unpaved surfaces are just some of the unique conditions that require a level of driver competence unlike that gained through experience in commercial trucking on paved highways. WorkSafeBC incident reports indicate that drivers who

lack specific experience and training with large loads off-highway can be a risk to themselves and to others.

We found that there is no mandatory training for fallers in non-destructive tree evaluation and blasting of danger trees. These skills are presently obtained by separate advanced training and are not therefore part of the core of required faller certification. An understanding about these matters would give workers a wider range of tools to use when specific risks are present and would not require a specialist to be called upon to make the initial detection of risk.

We also found that fees are an obstacle to faller training. The cost of faller certification training, at $9,500, is part of the problem. The other impediment is that faller certification programming is not eligible for government-supported student loans. We found that most trainees in the faller certification program are those being sponsored (by First Nations organizations or by federally funded training arrangements). Few people without some form of sponsorship are taking part in the training.

We recommend that training relative to known risks should be made mandatory. For example, drivers who lack specific experience and training in driving large loads off-highway should be required by ICBC to demonstrate competency before being given independent control of such a vehicle. Fallers should be required by WorkSafeBC to demonstrate competency in danger-tree recognition, non-destructive tree evaluation, and blasting, so that they have a wider range of tools and techniques available when specific risks are present.

Forest workers are often being pushed beyond their physical limits

Forestry work can involve strenuous effort, long hours or both. Forest workers can suffer a range of threats to their general health and well-being:

- fatigue (from both length of work day and number of days worked);
- cardiovascular exertion and muscle effort;
- repetitive strain injuries;

- other physical threats, including hearing damage, vibration damage, carbon monoxide exposure, and heat and cold stress; and
- substance abuse, including overuse of pain medication or use of illegal drugs.

Some types of forestry work on the ground—such as falling, bucking and rigging—are highly physically demanding. Not all individuals may have the cardiovascular fitness suitable for these jobs. Extremes of temperature and physical effort can push heart rates to excessive levels in some workers.

Safety experts advised us that fallers having less agility because of age or a previous injury continue to do tasks that require high levels of fitness. These "walking wounded" are at a high risk of re-injury. Studies in other industries have shown that previously injured workers are often likely to push themselves to reach performance levels beyond their capacity, especially when production pressures are high.

Statistics Canada data indicate that men doing heavy work suffer much higher levels of activity-limiting injury if they work more than 35 hours per week. Many forest workers performing the most strenuous or hazardous activities work considerably more hours than this.

Compared with most workers in any industry in British Columbia, log haulers work longer hours and more days continuously. It is not unusual to find truckers driving tonnes of logs at high speeds on unpaved roads under circumstances where their alertness is impaired. New standards were imposed in 2007, including a requirement that log books be completed by truckers. What contribution such log books and changed standards can make to safety is unknown at present.

Other forest workers now work long days, for many days in a row. The Munroe arbitration decision that was put in place on the Coast in 2003 permitted hours of work considerably longer than those considered reasonable 10 years ago. In addition, non-union workers, particularly the self-employed, may well put in more hours per week than their unionized counterparts.

Mechanisms for making safety a priority are, overall, inadequate

We found that little is being done by either government or industry to lessen this particular range of threats to the physical capability and mental alertness of workers.

We recommend that the Ministry of Labour and Citizens' Services identify, through credible third party research, safe work hour limits for high-risk forestry occupations and then regulate and enforce those limits accordingly. These limits should be made applicable to self-employed forest workers as well as those employed in the industry.

Forestry equipment is often not being operated or maintained to safe limits

Equipment that passes industry standards comes with operating specifications, some of which are stamped on plates attached to the machine. Log trailers, for example, have specified load limits. Mechanical harvesters and other handling equipment have tree diameter limits specified by the manufacturer.

Pushing equipment beyond its design limits presents a significant safety hazard. However, accident reports we examined during this audit suggest that mechanical harvesters and other equipment are often used on slopes in excess of the manufacturer's recommendation. We were told that truck overloads are a common occurrence as well, pushing loaded rigs beyond braking and stability expectations.

Maintaining trucks and other equipment is also critical to keeping workers safe—and doing so is required by regulation. Yet, we learned that equipment operators are not routinely inspecting and maintaining equipment and brakes before starting work.

Compliance and enforcement is a key function with respect to equipment maintenance. The relevant checklists and log books should be inspected regularly and necessary adjustments made. Adequate supervision introduces a higher level of oversight on equipment maintenance issues. Operators who are working alone require the same level of supervision with respect to their tasks and equipment upkeep as those who do not.

In addition to such oversight, regulations that are presently in place could, if adequately enforced, significantly reduce risks created by under-maintaining equipment or pushing it beyond

Mechanisms for making safety a priority are, overall, inadequate

its designers' intentions. Our previous recommendation, that WorkSafeBC more rigorously enforce existing regulations, applies to safety risks in this area.

A lone operator casts a grapple downslope to retrieve felled timber. (OAG staff photo)

Forest worker deaths are also occurring on the commute to work sites

A surprising number of deaths occur when forest workers are travelling to and from a work site (work-time travel). Log haulers' deaths account for a large proportion of these, but many fatalities are associated with other types of vehicles en route to and from a work site (see Exhibit 3 earlier in the report). Excessive speed on unpaved roads is a contributing factor.

Means of transporting workers, other than by road, are common, particularly on the Coast where travel by aircraft or boat is required to reach some work sites. We found strategies for the safe transport of these commuters are ad hoc at best. Provisions for closely tracking these workers and responding if their transportation fails are not always in place.

The same standards of safety planning, supervision and enforcement needed for harvesting and hauling operations are also applicable to daily work-time travel. For example, an effective safety infrastructure in the industry would ensure there are effective means of evacuating the injured even from remote locations. Even on small operations, a spare vehicle on site could be essential if the transport carrying workers was involved in a crash or became disabled.

We recommend that the Ministry of Labour and Citizens' Services consider ways to better protect all forest workers during work-time travel.

Adequate reporting of fatalities and serious injuries is lacking

If the provincial government is to meet its commitment to radically improve forest worker safety in British Columbia, then an important part of the strategy to do that should be an effective approach to reporting. Good reporting allows those responsible for change to monitor progress and to adjust both organization and mechanisms to ensure improvement. As well, good reporting keeps legislators and the public informed about the progress being made.

We therefore expected to find comprehensive and consistent public reporting on government's performance in reaching its goal of no fatalities and serious injuries in the forest industry. We found that while some reporting is done by various agencies, information generally is not being comprehensively gathered, analyzed and publicized.

Comprehensive reporting on forest worker safety is not available

We found that no one knows the number of forest workers active in the province and no one knows exactly how many workers suffer from work-related incidents each year. Various agencies have parts of the whole picture, yet the true rates of serious injury and fatality year to year cannot be accurately calculated because a base of accurate data has not been established.

Information about safety-related incidents is not being effectively shared

Currently, many agencies and interests may be involved in some aspect of the investigation of a forest fatality. They include the:

- Local police force or RCMP.
- British Columbia Coroners Service.
- Local hospital and attending physician.
- Ambulance Service.
- WorkSafeBC inspectors.
- Commercial Vehicle Safety and Enforcement (CVSE) of the Ministry of Transportation.
- ICBC.
- Employer, supervisors, fellow workers and family of the victim.
- Organized labour representative.

Adequate reporting of fatalities and serious injuries is lacking

Although some agencies share data, most of them focus only on the one piece of the information puzzle relevant to their individual mandate. However, we found that none of these parties has been assigned the lead data gathering, compiling and public reporting function. Nor has any one agency been given the mandate to consolidate the information and analyze it.

Personnel of the various police services, the BC Coroners Service and WorkSafeBC collaborate at the scene of a fatality, but each agency has its own processes and restrictive information disclosure practices. Agencies collaborate occasionally in joint actions, but there is no ongoing information-sharing protocol. For example:

- Commercial vehicle inspectors do not share their findings with WorkSafeBC.
- Forest companies do not share scale information on overloaded trucks with commercial vehicle inspectors.
- Results of post-mortems or toxicological analyses ordered by a coroner are not automatically communicated to others in the industry.

The definition of what constitutes a "forest worker fatality" is not clear

We found differences among several agencies as to when a death should be counted as a forest worker fatality. This makes reporting on progress toward the elimination of fatalities and serious injuries difficult.

The Coroners Service investigates and reports on all unexpected deaths in the forest industry. WorkSafeBC also collects detailed information about fatalities, no matter whether subsequent evidence suggests that the victim and circumstances fall outside the jurisdiction of the Workers Compensation Act. BC Forest Safety Council relies on fatality information originating from WorkSafeBC, as it has no investigative role.

WorkSafeBC reports fatalities according to its own criteria. It counts, for example: deaths related to traumatic events that "occur in the course of or arise out of employment"; deaths of workers who died possibly as the result of an industrial disease from exposures that may go back decades; and deaths that are the result of complications from an injury occurring in previous years.

Adequate reporting of fatalities and serious injuries is lacking

However, WorkSafeBC does not count deaths from heart attacks suffered on the job unless it can be proven that the main stressor leading to the death was related to the work. The agency also excludes most travel-related incidents unless they are strictly part of the job, as well as excluding data about independent operators such as truckers or contract fallers.

These exclusions and qualifications mean that any given year's WorkSafeBC report of provincial fatalities in the forest industry is provisional until causes of deaths are fully investigated.

In-depth analysis of individual incidents is not being publicized

The B.C. Forest Safety Council assembles a preliminary report with information from a "notice of incident" produced by WorkSafeBC at the start of its own investigative processes. The Forest Safety Council's aim in publishing these brief accounts is to alert the industry and its workers to new cases and to raise awareness.

We think that this preliminary notice material presents at least two risks:

- Readers may be inclined to jump to conclusions about causes because the conditions or chain of events leading to the incident have not yet been represented. For example, a notice of incident reporting that a skidder operator died after being struck by a cable may seem conclusive. After the full investigation, however, it could turn out that the immediate cause of death was blood loss hours later when no supervision, first aid or transportation was available for the lone worker. First impressions are hard to displace even when more thorough investigation reveals a range of contributing factors beyond the worker's control or judgement.
- Publicizing preliminary information before a complete account is ready may also undermine both the impact of the later investigative findings and the deterrence effect of non-compliance orders or administrative penalties.

In our opinion, a more effective public reporting strategy is WorkSafeBC's "lessons learned." These representative incidents are profiled on the agency's website. Although they do not convey the entire detail from the investigation, they do provide information about direct and contributing causes. Reported "near misses"

(incidents that endangered workers, or could have) would also, we believe, be useful to incorporate into the lessons portfolio.

Coroner's inquests are another useful reporting mechanism. The Coroner's Office calls public inquests that offer lessons to the forest industry community and that address topics of high public interest. For example, the Ted Gramlich inquest in 2006, that investigated the causes of this contract faller's death, and the Frank Leroux inquest in June 2007, which investigated the causes of this log hauler's death, both brought important issues to light and yielded useful recommendations to government and industry.

These inquests focused critical attention on how the lack of adequate safety infrastructure, adequate supervision and adequate communication in the forest workplace contributed to the two fatalities.

We believe that if these in-depth inquiries complemented an existing regime of comprehensive reporting that could monitor progress toward the elimination goal, the public and legislators would be better served.

A dependable method is not in place to measure progress

There is so much year-to-year variability in the number of deaths and serious injuries that single-year changes are not statistically meaningful. The trend over the last decade has averaged about 22 deaths a year, but with wide variations. The 2006 results (fewer fatalities) that were celebrated as an improvement fell within that predictable range. Similarly, the 2005 record that horrified the public and legislators was also well within the bounds of the annual swings.

Measuring progress toward the elimination goal should look at the trend over a number of years. Accurately measuring the success of safety improvements requires filtering out the following elements:

1. *The natural variability year to year of small numbers of incidents.* This issue increases statistical standard error and this in turn reduces the statistical significance of any one year that appears to be particularly high or particularly low. Higher standard error reduces the confidence we can take that a new pattern is emerging when a 'good year' appears in the data. This statistical variability accommodates the high number of fatality incidents

in the 2005 year and lower number in 2006, meaning that the difference between those years is not statistically significant. That is not to suggest that fewer incidents is not good news—it just means that one must filter out natural variability before one can calculate progress toward the zero goal.

2. *The effect of the decline in total workforce numbers.* *Rate* (e.g., number of serious injuries per 1000 workers per year) is most meaningful and *count* (e.g., number of serious injuries in given year) is less useful as a measure when there is ongoing change in the numbers of workers active in the industry. The same logic applies to fatality rates in the industry.

3. *The improvements contributed by mechanization.* We already know that workers inside protective structures are safer than those on the ground. It is the rate of incidents suffered by the latter population that matters most for measuring real improvement.

Once these matters have been accommodated, calculating improvement to forest worker safety will be possible. Being able to determine real changes accurately is important in order to provide legislators and the public with the actual status of forest worker safety.

We recommend that a lead ministry coordinate sharing and consolidation of information on fatalities, serious injuries and near-misses to support more extensive educational and enforcement activities to promote safety. The lead ministry should consolidate fatalities and injuries data and ensure that a system of comprehensive research and reporting is in place, one that covers the activities of all forest workers including the self-employed. That ministry should report meaningful information to the Legislative Assembly on a regular basis to provide legislators and the public with a basis for knowing whether safety improvements are working.

Ministry of Labour and Citizens' Services and Ministry of Forests and Range Management Response

General Comments

The Ministries of Labour & Citizens' Services and Forests and Range would like to thank the Office of the Auditor General for accepting our request to develop this report. The province recognizes the need for continued review and improvement in the safety of forest workers. We also thank the team assembled for this task for their insight and perseverance in developing this important report.

The observation that the forest industry historically characterised its operating environment as inherently unsafe serves as a reminder of the challenges. As noted, in 2003 the Premier challenged government and industry to significantly improve forest worker safety. The Forest Safety Task Force that was created initiated some important steps including the creation of the BC Forest Safety Council. Government, WorkSafeBC, industry, and forest professionals are all on record that forest worker safety is a top priority and are actively engaged in efforts to making the work safer.

News headlines since the drafting of this report indicate that significant progress is being made. Although this is a positive sign, we do agree with the basic tenet of the report that further work needs to be considered.

The Ministries of Labour and Citizens' Services and Forests and Range appreciate this opportunity to offer our preliminary views on the Auditor General's recommendations. The following summarizes the intentions of the Ministries in response to the findings and recommendations.

Leadership and appropriate organization are needed

Recommendation 1. **We recommend that government assign one ministry to lead in issuing policy direction including:**

- initiating regulatory change.
- closing jurisdictional gaps.
- assigning resources to meet government's safety commitments.

The Ministries of Labour & Citizens' Services and Forests & Range will convene an interagency committee that will include other affected Ministries, WorkSafeBC and bodies to clarify and assign roles and responsibilities in these three areas. Input will be specifically requested from other resource sectors that have demonstrated a high level of safety performance (in response to Recommendation 7). It will also include responsibilities for reviewing requirements for training relative to known risks (in response to Recommendation 12), and sharing and consolidation of information on fatalities, serious injuries and near-misses (in response to Recommendation 15).

Recommendation 2. **We recommend that the Ministry of Labour and Citizens' Services consider how best to ensure that a robust safety infrastructure is directly supporting every forestry work site.**

The Ministry of Labour and Citizens' Services agrees that everyone working in the forests should have access to adequate supervision and to appropriate supports to ensure forest worker safety. As the Auditor General's report notes, WorkSafeBC is proposing significant amendments to Part 26 of the Occupational Health and Safety Regulations that will clarify the responsibilities of all forest companies, regardless of size, to ensure safety at all forestry work sites. In addition, the Ministry, in conjunction with WorkSafeBC, will assess this recommendation in order to determine whether other measures might be warranted.

Recommendation 3. **We recommend that the Ministry of Labour and Citizens' Services bring self-employed forest workers under the province's occupational health and safety regulations.**

The Ministry of Labour and Citizens' Services shares the overall concern of the Auditor General with regard to small operations and independent operators, and will, in conjunction with WorkSafeBC, consider options to ensure that occupational health and safety standards are keeping pace with the dramatic changes in workplace roles and relationships – especially in forestry.

Recommendation 4. **We recommend that the Ministry of Labour and Citizens' Services ensure that a mandatory prequalification requirement for all firms is put in place, ensuring that forest industry firms, regardless of the size of the entity, be required to demonstrate safe operation and organization as a precondition for working in the industry.**

The Ministries of Labour and Citizens' Services and Forests and Range believe that prequalification strategies, where contract compliance is vigorously supported by owners, licensees and employers, can have a significant positive impact on safety. This is an approach that has underpinned injury prevention improvements in the Oil and Gas sector where industry has properly taken a leading role in improving safety.

One of the most significant recommendations of the Task Force was the creation of such an association for forestry, namely the BC Forest Safety Council. The Council has introduced its SAFE Certified Company Program. The program encourages forestry companies and related enterprises to earn certification by demonstrating that their safety program meets a realistic standard and that the firm is committed to making safety an over-riding priority. The goal of owners and licensees is to have every forestry company within British Columbia included in the program. To date, 2500 companies have registered and 250 have received training and passed a safety audit to become a SAFE registered company.

WorkSafeBC is exploring options with the Forest Safety Council to accelerate this program, and it is the view of the Ministry of Labour and Citizens' Services and the Ministry of Forests and Range that prequalification requirements should continue to be managed through the Forest Safety Council – where all of the key parties participate.

Recommendation 5. **We recommend that government consider economic incentives, outside the workers' compensation system, for rewarding safe operators. These should reach down to the smallest firms and the self employed, to encourage faster progress toward achieving the forest worker safety goals of government.**

The Ministry of Forests and Range will investigate what incentives may be developed, although it will be important that such incentives be coordinated with workers' compensation incentives and do not violate international trade arrangements.

Recommendation 6. **We recommend that existing health and safety regulations be more vigorously enforced by WorkSafeBC through inspections, follow up on infractions and punishment of non-compliance.**

November 30th 2005, WorkSafeBC reminded companies and workplace parties in writing of their legal obligations for occupational health and safety and the intention to carry out workplace inspections for compliance. Over the next few months, 315 workplace inspections were conducted and 655 orders were issued. Staff consulted directly with 32 major licensees on licensee responsibilities. Fifty-five standard questions were asked of workers and employers throughout these inspections to establish a baseline of the sector's understanding of their legal obligations and state of compliance with safety laws and regulations.

August 10th, 2006, WorkSafeBC followed up with a further letter to forestry CEOs and Chairs outlining the results of the inspections. Analysis was provided on the level of understanding of owner and prime contractor responsibilities; training of safe work practices, supervision, and emergency response; and supervision practices (posted on the WorkSafeBC website).

WorkSafeBC has continued to build on the forestry compliance project and strengthened its enforcement activity by:

- *Training all officers involved with forestry in the compliance strategy. Based on the outcomes of the compliance pilot, WorkSafeBC developed and provided additional tools to its officers and to industry to ensure consistency in what officers and the industry partners must deliver with regard to safety obligations.*
- *Continuing to monitor the compliance program through regional managers – with particular emphasis on our expectations regarding the quality and quantity of inspections.*
- *Continuing to meet with forestry firms and forestry workers to ensure that the compliance strategy and its requirements are well understood and well supported.*
- *Where warranted, issuing compliance orders and penalty orders.*

In support of the forest compliance activity, WorkSafeBC has also increased its enforcement capacity by recruiting additional hygiene and safety officers, investigation officers, engineers and case officers. The enforcement complement has been increased overall from 199 positions in 2004 to 268 in 2007/2008 – a 35 per cent increase. Of the 48 officers

active in inspecting forestry workplaces, 14 deal with the industry full time and 34 share their time with forestry and other high risk sectors such as construction and manufacturing – including forest product manufacturing.

From 2004 to 2006, workplace inspections increased by 63 per cent and initiating orders increased by 91 per cent. Penalty orders received annually from officers has increased, from 8 in 2004 to 17 as at October 31st, 2007.

From 2004 to 2006 WorkSafeBC has seen a 16 per cent reduction in claims; from 2005 to the end of 2006 the injury rate overall declined by 10 per cent, and more significantly the Serious Injury Rate declined by 19 per cent. As well, the number of fatalities in the sector is declining. WorkSafeBC's methodology, a twelve month rolling average, indicates that fatalities overall have declined by 57 per cent as of September 2007.

In addition to vigorous enforcement of law and regulations, WorkSafeBC has initiated a full review, extensive consultation and a formal public hearing on Part 26 – the Forestry Section of the Occupational Health and Safety Regulation.

In conclusion, the Ministries of Labour and Citizens' Services and Forests and Range, as well as WorkSafeBC all agree with a vigorous approach to enforcement. This synopsis provides an overview of steps taken by WorkSafeBC to-date, and provides evidence that suggests that these efforts are paying off. WorkSafeBC will continue to take a vigorous approach to enforcement.

Recommendation 7. **We recommend that government leadership on safety seek direct input from other natural resource-based industries having better safety records, such as mining.**

See Recommendation 1.

Mechanisms for making safety a priority are needed

Recommendation 8. **We recommend that robust safety planning in all aspects of forest operations should be made mandatory by the Ministry of Forests and Range.**

The Ministry of Forests and Range has completed a review of planning impacts on safety under its Forest and Range Evaluation Program and will be assessing this recommendation in the context of that detailed review.

Recommendation 9. **We recommend that the Ministry of Forests and Range seek two amendments to the Foresters Act:**

- **Make forest worker safety an explicit object of the Association of Forest Professionals under section 4 (2).**
- **Include in the definition of 'practice of professional forestry' explicit mention of competence in forest worker protection.**

The Ministry of Forests and Range has recently held discussions with the Association of BC Forest Professionals on the importance of forest worker safety, which is reflected in the Association's bylaws and professional ethics as well as publications to members. The Ministry will conduct a review of the impact of the amendments as proposed in this recommendation.

Recommendation 10. **We recommend that WorkSafeBC enforce the requirement that supervision be in place for all forest workers, including fallers and truckers.**

WorkSafeBC agrees with the Auditor General that supervision is integral to ensuring and maintaining a safe workplace in forestry. Through the Integrated Forest Safety Compliance Plan with its focus on accountability and responsibilities of all workplace parties (particularly in the contractor chain) and on planning, supervision, and training, prevention officers enforce supervision requirements for fallers and other workers at the worksite.

To date, enforcement efforts have focused on the responsibilities of employers and owners and less specifically on the supervision of truckers, but WorkSafeBC agrees a focused approach is necessary. WorkSafeBC's Resource Road Safety Practices (RRSP) strategy, to be launched in January 2008, will expand forestry enforcement efforts in a number of areas, one of which is the requirement for supervision of truckers.

Recommendation 11. **We recommend that the Ministry of Forests and Range use its powers to enforce safe use of resource roads. The Ministry should establish and participate actively in resource road user committees.**

The Ministry of Forests and Range will review its policies, procedures and priorities for compliance and enforcement on resource roads under its jurisdiction. The Ministry has established three pilot projects across the province to work with road user committees in the interests of road safety.

Once the pilots are successfully implemented, the principles developed will be used to create a provincial standard for road user committees. The Ministry of Forests and Range is also working with several Ministries on a number of policies and legislative approaches for roads and including WorkSafeBC in the safety related developments.

Recommendation 12. **We recommend that training relative to known risks should be made mandatory. For example, drivers who lack specific experience and training in driving large loads off-highway should be required by ICBC to demonstrate competency before being given independent control of such a vehicle. Fallers should be required by WorkSafeBC to demonstrate competency in danger-tree recognition, non-destructive tree evaluation, and blasting, so that they have a wider range of tools and techniques available when specific risks are present.**

See Recommendation 1.

Recommendation 13. **We recommend that the Ministry of Labour and Citizens' Services identify, through credible third party research, safe work hour limits for high-risk forestry occupations and then regulate and enforce those limits accordingly. These limits should be made applicable to self-employed forest workers as well as those employed in the industry.**

The Ministry of Labour and Citizens' Services supports the recommendation that third party research on safe work hour limits should be undertaken. To this end, the Ministry notes that WorkSafeBC has included in its 2008 workplan the preparation of a discussion paper regarding fatigue and hours of work that will involve third party research into safe work hour limits in high-risk occupations and industries, including forestry. WorkSafeBC is undertaking this research as part of its ongoing review of the Occupational Health and Safety Regulation. The Ministry will also review this research to identify and consider other potential measures.

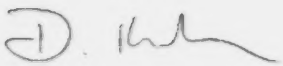
Recommendation 14. **We recommend that the Ministry of Labour and Citizens' Services consider ways to better protect all forest workers during work-time travel.**

The Ministry of Labour and Citizens' Services recognizes the challenges and safety risks associated with travel that is part of a forest worker's job, and will in conjunction with WorkSafeBC, assess this recommendation in order to determine whether other measures might be warranted.

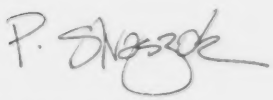
Better reporting is needed

Recommendation 15. **We recommend that a lead ministry coordinate sharing and consolidation of information on fatalities, serious injuries and near-misses to support more extensive educational and enforcement activities to promote safety. The lead ministry should consolidate fatalities and injuries data and ensure that a system of comprehensive research and reporting is in place, one that covers the activities of all forest workers including the self-employed. That ministry should report meaningful information to the Legislative Assembly on a regular basis to provide legislators and the public with a basis for knowing whether safety improvements are working.**

See Recommendation 1.



Doug Konkin — *January 8, 2008*
Deputy Minister
Ministry of Forests and Range

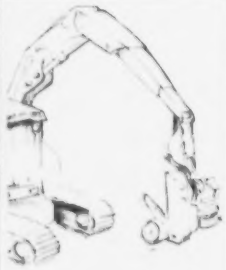
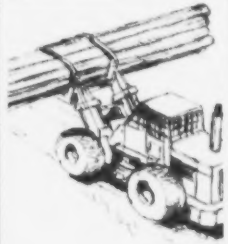
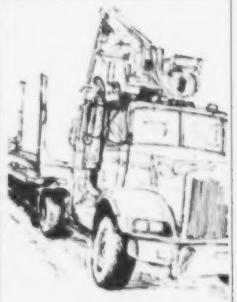


Paul Straszak — *January 8, 2008*
Associate Deputy Minister
Ministry of Labour and Citizens' Services

Appendices

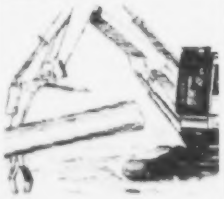
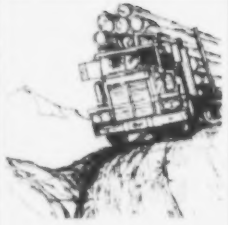
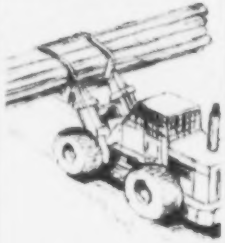
Use of timber harvesting methods (%) by region in British Columbia, 2006

Most Common Harvesting Method:

Falling	Yarding	Processing	Loading	Hauling
North (38% of total provincial cut)[1]				
Feller-buncher (99% of regional volume)	Skidder (78% of regional volume)	Processor (99% of regional volume)	Hydraulic loader (100% of regional volume)	Truck (100% of regional volume.)
				

[1] Based on total cut in 2006 of 90,543,889 cubic metres.

Appendix A: Use of timber harvesting methods (%) by region in British Columbia, 2006

Falling	Yarding	Processing	Loading	Hauling
Coast (27% of total provincial cut)				
Hand falling (70% of regional volume)	Yarder (73% of regional volume)	Hand bucking (66% of regional volume)	Hydraulic loader (75% of regional volume)	Truck (100% of regional volume.
				
Interior (35% of total provincial cut)				
Feller-buncher (82% of regional volume)	Skidder (84% of regional volume)	Processor (94% of regional volume)	Hydraulic loader (87% of regional volume)	Truck (100% of regional volume.)
				

(All drawings used with permission of WorkSafeBC)

Appendix B: Forest Safety Task Force Membership

Task Force Members

Douglas Enns, Chair	Chair, Board of Directors Workers Compensation Board of BC
Dave Brensrud	Independent Contract Faller
Ron Corbeil	National Health and Safety Director IWA Canada
Wayne Coulson	President and CEO Coulson Forest Products Ltd.
David Emerson	President and CEO Canfor Corporation
Jim Girvan	Executive Director Truck Loggers' Association
Dave Haggard	President IWA Canada
Reid Hedlund	Chair, Forest Industry Safety Association
Sandy McDade	President Weyerhaeuser Company Ltd.
Keith Playfair	Director, KDL Group of Companies (independent contract fallers)
Jim Shepherd	President and CEO Slocan Forest Products Ltd.
Les Veale	Chair, National Health and Safety Council IWA Canada

Task Force Advisors

Tanner Elton	Principal, Tanner Elton & Associates
Sheryl Wynne	Workers' Compensation Board of BC

Appendix B: Forest Safety Task Force Membership

Task Force Secretariat

Roberta Ellis	Vice-President, Prevention Division, Workers Compensation Board of BC
Roger Harris	Member of the Legislative Assembly of British Columbia for Skeena
John Mann	Vice-President, TimberWest Forest Corporation
Ian May	Principal, Ian May Consulting Ltd.
Keith Rush	General Manager, South Coast Operations, Interfor
Don Wright	Chief Trade Negotiator, Ministry of Forests

Source: Final Report of the Forest Safety Task Force, January 2004.

Appendix C: Office of the Auditor General: 2007/08 reports issued to date

Report 1 – April 2007

Special Audit Report to the Speaker: The Financial Framework Supporting the Legislative Assembly

Report 2 – June 2007

The Child and Youth Mental Health Plan: A Promising Start to Meeting an Urgent Need

Report 3 – October 2007

A Review of the Vancouver Convention Centre Expansion Project: Governance and Risk Management

Report 4 – December 2007

Follow-up of 2004/2005 Report 3: Preventing and Managing Diabetes in British Columbia

Report 5 – January 2008

Preventing Fatalities and Serious Injuries in B.C. Forests: Progress Needed

The above reports can be accessed through our website at http://www.bcauditor.com and can also be requested in print through our office.